

The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 790.—Vol. XX.]

LONDON, SATURDAY, OCTOBER 12, 1850.

[PRICE 6D.]

SOUTH FORTUNE MINE.
TO BE SOLD, BY PUBLIC AUCTION, on Tuesday, the 15th inst., by Two o'clock in the afternoon, at the account-house, SOUTH WHEAL FORTUNE COPPER MINE, situated in the parishes of BREAGE and SITHNEY, near HELSTON, CORNWALL, together with the MATERIALS, consisting of a 22-inch CYLINDER PUMPING-ENGINE, 5-foot stroke (on Bull's principle), 70 fathoms of pit-work complete, capstans, shears, horse-whims, with every other material required for a mine in full work; together with the SETT, of which about 17 years of the term remain unexpired, at a 1-15th dish.
The mine is now in full course of working, and may be inspected by applying to Capt. M. W. Martyn; or to Mr. Thomas Martyn, the purser, Breage, Helston.
South Wheal Fortune, October 1, 1850.

TAW VALE RAILWAY.—IMPORTANT SALE.
MR. G. HEARSON respectfully announces, that he is instructed by Mr. Thorne, late contractor for the works on the above railway, to OFFER for SALE BY AUCTION, at the Railway Station, Barnstaple, on Wednesday, October 30th, and two following days, ALL THE MATERIALS that have been provided for the completion of the contract, and the PLANT now on the line, the whole of which must be sold without reserve, the Taw Vale Railway board having directed the same to be removed forthwith.
The MATERIALS comprise about 6000 cubic feet of payanised megal timber, the greater part of which is in lengths of from 40 to 60 feet, carefully selected at Southampton and other ports for the permanent girders of the river bridges; 3500 feet of 3-inch megal plank; 2000 feet of yellow pine timber; 1200 feet of plank, of various sizes; 1300 payanised railway sleepers, 9 feet long, 10 by 4; 1500 feet of oak, elm, and ash timber; 10 tons of new bar iron, of various sizes; 7 tons of wagon and scrap iron; 12,000 bricks; 30, tons of larch poles; 2000 feet of ashlar stone; 600 yards of building stones, &c., &c.
The PLANT comprises a locomotive engine and tender, by Chapman, very little worn. Particulars as follows:—inside cylinder, 14-inch diameter, and 18-inch stroke; driving wheels, 6-foot diameter; leading and trailing wheels, 4 feet; strong copper fire-box, nearly new; and 111 tubes, 7½ feet long; outside diameter, 2-inch. The tender is constructed to hold 600 gallons. Wheels, 4-foot diameter. A patent lifting jack; 210 tons of contractors' rails, 41 lbs. to the yard; 120 earth wagons; 40 sets of horse harness; 2 timber wagons, with gins; 120 new picks, 80 shovels and grafting tools; smith's bellows, and tools for four workshops; 5½ hp engines, complete; a travelling crane, equal to 5 tons; several brass lifting pumps, with pipe; 3 lead pumps and pipe; 1 iron pump, and iron pipes of various sizes; a large quantity of gas fittings; 5 mortar mills; lifting jacks; boring tools; barrows; about 3000 temporary sleepers, and various other articles.
The whole of the above will be particularised in catalogues, which may be had gratis of the auctioneer, Litchdon-street, Barnstaple, one week previous to the sale.
Approved bills will be taken at three months for all purchases above £30; and at six months for purchases above £100.
Each day's sale to commence at Eleven o'clock in the forenoon precisely.
Dated Barnstaple, October 2, 1850.

DEAN FOREST.—VALUABLE COAL AND IRON WORKS.
Affording an opportunity seldom offered for acquiring a lucrative and first-rate concern.
MESSERS. ADAM MURRAY & SON are instructed to SELL, BY AUCTION, at the King's Head, NEWPORT, MONMOUTHSHIRE, on Saturday, the 16th day of November next, at Twelve o'clock, at noon (unless an acceptable offer be previously made), ALL THE IRON AND COAL WORKS, situated at BREAM, in the hundred of ST. BRIAVALS, GLOUCESTERSHIRE, now in the occupation of the BROMLEY HILL IRON AND COAL COMPANY.
The COAL WORKS comprise two gales of the WHITTINGTON OR YARD DELF VEIN OF COAL, known as the Bromley Hill level, and the Midsummer level, amounting to 200 acres, subject to a Royalty to the Crown of 1½d. per ton, or a minimum rent of £4 a year. Adjoining, is the BROMLEY HILL IRON MINE, of 400 acres, subject to a Royalty of 1d. per ton, and an annual rent to the Crown of £10. A well built BLAST FURNACE and a STEAM-ENGINE of 45-horse power, with various buildings, are erected on the mines, and a never-failing stream of water runs through them. These mines are well situated both for railway and water carriage.
For further particulars, apply to Mr. Arthur Ryland, solicitor, Cherry-street, Birmingham; Mr. Reginald A. Parker, solicitor, Old Jewry Chambers, London; Mr. Fryer, solicitor, Colerford; or to Messrs. A. Murray and Son, 35, Craven-street, Strand, London.

UPSET PRICE REDUCED.
EAST OF SCOTLAND MALLEABLE IRON-WORKS.
TO BE EXPOSED TO SALE, BY PUBLIC AUCTION, within the TOWN-HOUSE, DUNFERMLINE, on Wednesday, the 6th day of November next, at Twelve o'clock noon, the EAST OF SCOTLAND MALLEABLE IRON-WORKS, at DUNFERMLINE, comprising—A STEAM-ENGINE, of 80-horse power, working the machinery, consisting of FORGE and 2 PULLEYS, of 16 in. diameter, HAMMER and PATENT SHINGLING MACHINE; also a 16-in. MERCHANT BAR or RAIL MILL, a 12-in. MILL for ordinary sized mill bars, and an 8-in. GUDGE MILL, 13 PULLEYS, 13 PULLEYS, 13 PULLEYS, the whole capable of producing 120 tons of bar-iron weekly.
A REFINERY STEAM-ENGINE, of 45-horse power, with blowing apparatus, complete, and two fires erected.
A complete SET OF WORKSHOPS, containing a 20-horse power STEAM-ENGINE, driving a powerful BOLL TURNING LATHE.
A PUMPING and CLAY MILL STEAM-ENGINE, of 16-horse power, used for the manufacture of fire-brick and pumping water for supply of engines.
Also the ESTATE of TREASURY, consisting of about 107 imperial acres, with elegant MANSION-HOUSE and PLEASURE GROUNDS, situated about half a mile to the east of the town of Dunfermline.
The above will be put up in one lot, at the reduced upset price of £16,000; if not sold in one lot, the Iron-Works will be then exposed separately, at the very low upset price of £3500; and if the Works be disposed of, the Estate will then after be put up at the sum of £2500.
The purchaser of the works will have it in his option to take all the necessary tools, loam machinery, and stocks of different kinds, at a valuation.
There will also BE SOLD, A STEAM-ENGINE, of 80-horse power, intended to drive the rolling-mills, apart from the forges, with strong cast-iron framing and relative machinery.
For further particulars, application may be made to Mr. James Inglis, the Chairman of the Board of Management; or to Johnstone, Russell, and Craig, writers, in Dunfermline, in whose hands may be seen the title deeds of the lands and articles of roup.
Dunfermline, October 3, 1850.

FOR SALE, BY PRIVATE CONTRACT.
THE LONDON VULCAN FOUNDRY AND ENGINEERING ESTABLISHMENT, PORT-DUNDAS, GLASGOW.
These WORKS have been erected within the last few years regardless of expense, having all the recent improvements and facility for carrying on an extensive business, capable of producing 40 tons castings daily, from five cupolas of the best construction.
The BUILDINGS and PLANT are most extensive, substantial, and well arranged, having cranes to sweep the moulding floors, erecting shops, yard, and wharf, all being most advantageously situated on the Forth and Clyde Canal, Port-Dundas, having free access to and in the immediate vicinity of the principal Scotch mineral districts, and where vessels may be loaded for the London, Liverpool, and other markets.
These works are well worthy the attention of the trade, being at present in operation and intending purchasers may have them either with or without present contracts.
May be viewed on Tuesdays and Fridays, between the hours of ten and three o'clock, on application to Mr. Alexander Balderston, 18, Renfield-street, Glasgow, who will furnish all other particulars.

TIPTON.
TO BE SOLD, OR LET ON ROYALTY, BY PRIVATE TENDER, A VALUABLE VEIN OR STRATA OF BROOCH COAL, lying in and under about SIXTEEN ACRES OF LAND, situated at BLOOMFIELD, in the parish of TIPTON, and county of STAFFORD. The MINE (which lies within thirty-three yards of the surface) has been thoroughly proved to be of very superior quality. There are RIGHT SHAFTS already sunk therein, of which the purchaser or lessee would have the use. The Birmingham Canal, and also the Stour Valley and Oxford, Worcester and Wolverhampton Railways, run through the property, with stations in the immediate vicinity—thus affording unusual facilities for working and disposing of such mines.
For particulars, apply at the respective offices of Mr. John Bolton, solicitor, Dudley; or Mr. Solomon Powell, surveyor, &c., Tipton, where plans of the property may be inspected, and to whom tenders are to be sent, on or before the first day of November next.

TO BE SOLD, BY PRIVATE CONTRACT, EIGHTEEN SETS OF RAILWAY WHEELS AND AXLES, with wrought-iron spokes and trees, 2 feet 6 inches diameter, 5½ inches on the face, and 1½ inch thick, narrow gauge. TWO FOUNDRY CRANES, to carry twenty tons each, with chain, blocks, and gearing, complete.
FIFTEEN-HORSE CONDENSING STEAM-ENGINE, with direct action, having been in use only about six months.
TWELVE-HORSE HIGH-PRESSURE STEAM-ENGINE, quite new.
Apply to Thomas Dixon, iron merchant, Bradford, Yorkshire.

TO BE SOLD, BY AUCTION, THE FREEHOLD FARM, called "THE HOLE," containing 103 acres (or thereabouts) of anciently-enclosed LANDS, and 222 acres (or thereabouts) of more recently enclosed PASTURE, and an undivided moiety of an outlying PASTURE, containing 330 acres (or thereabouts), situated in PRIORSDALE, in the parish of ALSTON, in the county of CUMBERLAND. The MINERALS under the anciently enclosed lands belong to the proprietor of the soil, and those under the two pastures belong to him jointly with the Commissioners of the Greenwich Hospital.
The ESTATE is intersected by NUMEROUS VEINS OF LEAD ORE, mostly unexplored, but in strata favourable to the production of lead ore, being the same as in the adjoining moor of ALSTON MOOR, where extensive lead mines are worked.
The time and place of sale will be announced in a future advertisement. Reference to Messrs. J. and H. Gibson, solicitors, Hexham, Northumberland.

MR. EVAN HOPKINS, C.E., F.G.S., &c., CONSULTING MINING ENGINEER.
OFFICE, No. 13, AUSTINFRIARS, LONDON.

Mr. HOPKINS may be consulted daily by Noblemen, Gentlemen, and Capitalists, who have invested, or may wish to invest, their capital in MINES or MINERAL PROPERTIES, on all matters connected therewith (Home and Foreign).
* * * Every description of Mineral Property inspected and reported on—on the Continent as well as the United Kingdom, and distant capitalists may receive periodical advice.
N.B.—Being a responsible and confidential business, and having a very extensive connection, it becomes necessary to acquaint those who apply for reports, that they must be paid for on delivery, at his office, otherwise they cannot be attended to.
* * * Mr. Hopkins having just arrived in town, will be happy, during his short stay, to communicate personally with any parties who may wish to consult him respecting mining property or management.

MR. JAMES CROFTS, of No. 4, KING-STREET, CHEAPSIDE, is encouraged to renew his recommendations to CAPITALISTS to turn their attention to BRITISH MINING PROPERTY, as a safe MEDIUM for INVESTMENT at the present moment in particular—an unprecedented increase having taken place in the productive class of mines, solely owing to the application of capital and improved modes of working.

Mr. CROFTS can procure SHARES in all MINES of repute, and has FOR SALE specially—Grampian and St. Aubyn (1 share), Wheal Crebor (10 shares), West Wheal Jewel (15 shares), Wheal Treacoll (10 shares)—the two latter mines are particularly worth attention; Wheal Fortescue (20 shares), Wheal Russell (10 shares) Bodcol, or South Wales (250 shares), West Tolgus (4 shares), North Shepherds (1 share), West Seton, Wheal Seton, East Sharp Tor; and in all divided mines; also Comblaw, Wheal Benny, Lamberco, Wheal Vincent, and Wheal Sarah. By spirited working, it may be fairly calculated, they would soon become dividend mines.

* * * Mr. Crofts is only a purchaser of shares for principals.—Oct. 12, 1850.

MINING AND GENERAL AGENCY OFFICE,
No. 52, THREADNEEDLE-STREET, LONDON.

Mr. R. TREDINNICK begs to inform his Friends and the Public of his REMOVAL to the above COMMODIOUS ROOMS, in the Hall of Commerce, where he purposes to hold, in addition to his general Agency Business, PERIODICAL SALES, BY AUCTION, OF SHARES IN MINES, RAILWAYS, BANKS, CANALS, INSURANCE, and OTHER COMPANIES; also Reversions, Annuities, Bonds, &c., together with Estates, Houses, and Property of every description.
SHARES BOUGHT AND SOLD ON COMMISSION, and MONETARY MATTERS of every kind NEGOTIATED; Statistical and General Information afforded gratuitously, upon personal application.
Mr. T. offers to the mining world the opportunity of exhibiting in his Public Sale Rooms, Reports, Plans, Sections, and Specimens of Mines and Mineral Districts, whether situated in the United Kingdom, Foreign, or Colonial Possessions, upon forwarding the same, free of expense; as also Plans, Sections, &c., of Estates, Houses, and other Property for Sale.

VALUABLE MINERAL PROPERTY TO BE IN PART OR WHOLLY DISPOSED OF.—This most desirable METALLIFEROUS SETT, consisting of nearly 2000 acres, is situated in one of the renowned mining districts of central WALES. One discovery of SILVER-LEAD ORE, made upon it some few months ago, was considered of so singular and promising a nature, that a brief account of it was then published, and subsequently copied into most of the leading papers of the kingdom. Since that period a shallow sink has been made on the lode, which is 6 feet wide, traversing a beautiful soft whitish killas. The analysis of the ore, of which there is about 20 tons on the bank, gives 78 per cent. of lead and 80 ounces of silver to the ton; indeed, the last assay of the ore, found at about 7 fathoms from the surface, gave the extraordinary quantity of 200 ounces of silver to the ton. There is a fine mixture of lead ore at the bottom of the present shallow sink.

The mine is but 9 miles (of good turnpike-road) from the shipping port, and a fine stream of water runs close past it, offering every facility for the development of its invaluable mineral resources.
For further particulars apply (post-paid) to "X. Y. Z." at the office of the Mining Journal, 26, Fleet-street, London.

MOST VALUABLE COAL MINES, AT NAILSTONE, near BAGWORTH, in the county of LEICESTER.—TO BE LET, for a term of years to be agreed upon, all those very valuable BEDS or SEAMS OF COAL, situated at Nailstone aforesaid, extending under 370 ACRES OF LAND, or thereabouts, in a ring fence, and adjoining the prosperous collieries of Lord Maynard on the east, and on the west are the extensive collieries belonging to the Leicester Coal Company at West. The Leicester and Swannington Railway now passes within half a mile of this property, and by it markets have been opened for the sale of the coal, the produce of these mines in the metropolis, Leicester, Northampton, and in very many of the most important towns of the kingdom. These mines have been proved by the operations of the two important collieries before mentioned, and it has been most satisfactorily ascertained that they are free from faults, and are regular and uniform in their position throughout this estate. The quality also of these mines is proved to be excellent, and the demand for coal very great and certain.
All further information may be obtained by applying to Mr. Henry Holt, mineral agent, Wakefield; Messrs. Sudlows, Torr, and Janewry, 38, Bedford-row, London; or to Mr. T. M. Lee, solicitor, Leeds.

LOCOMOTIVE ENGINES.—ON SALE.—SIX NEW LOCOMOTIVE PASSENGER ENGINES and TENDERS; particulars as follows: Outside cylinders 15 in. diameter, and 22 in. in stroke; driving wheels 6 feet diameter; leading and trailing wheels 3 feet 6 inches diameter. All the wheels entirely of wrought-iron. Strong copper fire-boxes, with 66 feet of heating surface, and 130 tubes, 10 feet 5 inches long, and 5 inches outside diameter. The tenders are made to hold 1000 gallons of water, with well constructed framing, all of wrought-iron, and are carried on six wheels, 3 feet 6 inches diameter, of wrought-iron, with cast-iron centres.
The whole of the workmanship is of the very best description, and the price very moderate.—For further particulars apply to the makers, Messrs. Benjamin Hick and Son, Soho Iron-Works, Bolton; or to Mr. Josiah Kearsley, at the office of Messrs. B. H. and Son, 1, New Broad-street, City, London.—July 25, 1850.

PLEASURE STEAM-SKIFF, fitted with Engine and Boiler, and a Screw Propeller; will run 8 miles per hour—carries 10 persons: suitable for a tidal river.—Price £45.
A THAMES STEAMER, 95 feet long, 12 feet beam, 14 feet paddle-wheels, fitted with a pair of oscillating engines, of 30-horse power. The cabins are well fitted up, and, with a trifling outlay, the vessel may be fit for service; the engines are in excellent order.—Price £320.
The HULL of a NEW IRON STEAM-BOAT, 160 feet long, 13 feet beam, constructed to draw only 18 inches of water when loaded—will carry 600 persons. She has ample cabin accommodation, and is of the very best workmanship.—Price £248.
MARINE ENGINES, 20-horse power, direct acting, just taken out of one of the river boats, in good condition.—Price £110.
ANOTHER PAIR.—Price £140.
Also, a pair of 6-horse power, or combined 12-horse.—Price £70.
Also several other engines equally cheap.
Apply to RICHARDSON & CO., 15, Old Broad-street, London.

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PEBANG, SINGAPORE, and HONG-KONG.
THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.
MEDITERRANEAN.—Malta.—On the 20th and 29th of every month. CONSTANTINOPLE.—On the 29th of the month. ALEXANDRIA.—On the 20th of the month.
SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.
For plans of the vessels, rates of passage—money, and to secure passages and ship cargo apply at the company's offices, No. 122, Leadenhall-street, London; and Oriental-place, Southampton.

STIRLING'S PATENTS FOR IMPROVEMENTS IN IRON.—1. TOUGHENED CAST-IRON, which is double the strength of ordinary cast-iron, and only from 10s. to 12s. per ton extra.
2. ANTI-LAMINATING RAILS and TIRES for WHEELS at an extra price of about 7s. 6d. per ton. Also IMPROVEMENTS in the MAKING OF WROUGHT-IRON—saving one process to the manufacturer.
Further particulars and terms of license, &c., may be obtained on application to Mr. Jee, civil engineer, No. 6, John-street, Adelphi, London; also from the London agents, Messrs. GARDEN and MACANDREW, 34, Dowgate-hill; and the Scotch agents, Messrs. W. and J. H. Johnson, 165, Buchanan-street, Glasgow and 20 St. Andrew's-square, Edinburgh.

HUBBUCK'S PATENT WHITE ZINC PAINT combines ELEGANCE, DURABILITY, HEALTH, and ECONOMY. Unparalleled in whiteness. It is permanent for ages—unaffected by bilge water, sugar cargoes, vapour from cesspools, or the most noxious gases—equal to the finest coach painting, without the use of varnish—favourable to the health of the painter, and to the occupants of apartments newly painted with it—covers so much work, that it becomes cheaper than the poisonous paints hitherto used. Each cask is stamped "HUBBUCK, London, Patent."
A circular, with full particulars, may be obtained from the principal dealers in paints, and at the works of Thos. Hubbuck and Son, opposite the London Docks.

WANTED, BY THE MINING COMPANY OF THE CENTRAL PYRENEES, A RESPECTABLE PARTY, either to take the MANAGEMENT on behalf of the company, or to RENT their MANGANESE, and silver-containing LEAD ORE MINES.
For particulars, apply to Graetzer and Hermann, 3, Haggis-lane, Wood-street.

TO COPPER SMELTERS, AND OTHERS.—A Gentleman thoroughly acquainted with all the PRACTICAL DETAIL OF COPPER SMELTING, as well as the MANAGEMENT OF THE WORKS, is OPEN to an ENGAGEMENT, either at HOME or ABROAD. The Advertiser is well acquainted with the working of all the PATENT PROCESSES at present applied to the SMELTING OF COPPER ORES in Australia. Satisfactory references given.—Address, "W. E.," Post-office, Swansea.

TO MINING COMPANIES.—AN ENGINEER, aged 39, who has recently returned from the Continent, wishes to meet with AN ENGAGEMENT TO GO ABROAD, to any healthy part, to ASSIST and SUPERINTEND the ERECTION OF STEAM-ENGINES, or any other MACHINERY, or the WORKING of the same, having been so engaged the last eighteen years. Can make himself understood in the German or Spanish languages. Testimonials can be given.
Letters to be addressed "G. P.," care of the Editor of the Mining Journal, 26, Fleet-street, London.

FURNACE BUILDER.—A PERSON wishes to OBTAIN an ENGAGEMENT TO GO ABROAD, to superintend the ERECTION OF BUILDINGS of any description, such as IRON-WORKS, QUICKSILVER, OR OTHER FURNACES. The Advertiser can make himself understood in the Spanish Language. Testimonials can be given.—Letters to be addressed "R. G.," care of the Editor of the Mining Journal, 26, Fleet-street, London.

POWERFUL PUMPS, FOR DRAINING LAND, &c.—An EMINENT ENGINEER, in town, having an order for a PUMP to lift 30 tons of water per minute, 4 feet high, will CONTRACT to MAKE a SIMILAR ONE, with or without steam-engine combined, at HALF the USUAL COST. Plans and estimate will be supplied.—Apply to Mr. Dircks, consulting engineer, 32, Moorgate-street, City.

FOR SALE, BY PRIVATE CONTRACT, A 50-IN. ENGINE, WITH BRASS CONDENSING WORK AND BOILER (10 tons).
Apply to Capt. Evans, Pool, Cornwall.

MONEY.—SUMS FROM THREE HUNDRED TO FIFTEEN THOUSAND POUNDS to be ADVANCED ON MORTGAGE OF FREEHOLD, LEASEHOLD, COPYHOLD, REVERSIONS, MONEY in the FUNDS, and on approved MINING and RAILWAY SHARES, and on DEBENTURES, and MONEY NEGOTIATIONS generally EFFECTED.—Apply to Mr. Dickinson, 2, Cannon-row, Parliament-st.

MR. JACQUES BRESSON, MERCHANT IN FRANCE STOCKS, established since 1825, in PARIS, 31, PLACE DE LA BOURSE (facing the Parloir of the Palais de la Bourse), undertakes the PURCHASE and SALE OF PUBLIC SECURITIES, OF FRENCH RAILWAY SHARES, according to the course of Exchange of the day—receives them as deposit, and recovers the coupons of interests and dividends. Investment of large and small sums at more advantageous terms than in England. He undertakes also, in France, the PURCHASE and SALE OF CONCESSIONS OF MINES, of Working Mines, equally the Search of Mines, of Gas-Works, and others, of Iron-Mills, Melting and Founding Houses, Weaving-Mills, and large industrial establishments.

MINING.—COMPANIES of respectability requiring OFFICES for CARRYING ON their AFFAIRS in LONDON, including MANAGEMENT, may be ACCOMMODATED on application to Mr. FENTON, No. 5, WHITE HART-COURT, LOMBARD-STREET.—SHARES ON SALE in those well-known dividend-paying Mines, South Carolina, Providence, Spears Consols, Carn Bros, Wheal Rose, &c., and a FEW for DISPOSAL in those promising adventures Wheal Arthur, Wheal Oak, Warrigean Consols, South Llanelli, &c.

MINING OFFICES, No. 9, ST. MICHAEL'S-ALLEY, CORNHILL, CITY (established 20 years).—WM. TRENEY begs respectfully to inform the Public that he is at all times in a position to BUY or SELL SHARES in most of the DIVIDEND-PAYING MINES; and being a native of Cornwall, he is always ready to give the best information respecting mining property in general.

MINING PROPERTY.—Messrs. BROWN & CO., of No. 16, FENCHURCH-STREET, LONDON, transact EVERY DESCRIPTION OF MINING PROPERTY, and have now on hand a FEW SHARES in one of the most valuable in Cornwall, being surrounded by Carn Bros, Wheal Buller, and other rich and dividend-paying Mines; and have also a few of the remaining Shares in Exmoor Wheal Eliza, Polgar and Lancarrow, and West Phoenix Mine.—Sept. 30, 1850.

MINING PROPERTY.—BUSINESS transacted in every description of MINING PROPERTY, SHARES BOUGHT AND SOLD, ADVICE GIVEN TO PARTIES as to INVESTMENT, ADVANCES OF MONEY MADE on this DESCRIPTION OF PROPERTY, Statistics given on Mines, and the earliest information obtained from the mineral districts.—Apply to DURRANT & CO., Mining Sharebrokers, 28, Lombard-street.

MINES.—MOLYNEUX & CO., 6, FINSBURY-PLACE SOUTH, and 6, WEST-STREET, FINSBURY-CIRCUS, have SHARES FOR SALE in DIVIDEND-PAYING and OTHER MINES, which will ensure to capitalists the safest and most unexceptionable investment.—Office hours from Ten to Five o'clock.

MANUEL AND CO., MINING AGENTS, are instructed to SELL in the following DIVIDEND-PAYING MINES:—South Frances, Wheal Seton, Trevelick, South Bassett, &c., also in other mines, including—Russell, Runnallsford, Combe, Exmoors, &c.—Office, 42, Fish-street, London.

MR. R. TRIPP, MINING AGENT, is instructed to BUY and SELL in most of the best DIVIDEND-PAYING MINES, including—Devon Great Consols, Trevelick and Barrier, South Carolina, West Carolina, Wheal Margaret, Wheal Reeth, Alfred Consols, Wellington, Great Wheal Badden, Wheal Tremayne, Lelant Consols, Wheal Trelawny, Wheal Mary Ann, Stray Park, South Bassett, Tincroft, Tamar &c.—FOREIGN: Linares, United Mexican, St. John del Rey, Santiago, and Cobre Mine, MINING AND SHARE OFFICES, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

MESSERS. BOXALL & CO., MINING SHARE DEALERS, 5, CROSBY HALL CHAMBERS, BISHOPSGATE-STREET.

MESSERS. WATSON & ENSOR, MINING AGENTS, 4, TOKENHOUSE-YARD, LOTHBURY, LONDON.

CREFT AND CO., 1, ROYAL EXCHANGE BUILDINGS, LONDON, can always BUY or SELL every description of MINING SHARES. WANTED, Peter Tavy and Mary Tavy shares, for which a large premium will be given.

EAST TRESCOLL MINING COMPANY.—Notice is hereby given, that the OFFICES of this COMPANY are now REMOVED from King-street to 15, OLD BROAD-STREET, CITY. JAMES BRAND, Purser.

MINING COMPANY OF WALES.—PROSPECTUSES, containing REPORTS on the MINES and QUARRIES of the COMPANY, Terms and Conditions for its Government, &c., may be had of ST. PIERRE FOLEY, Secretary, to whom letters on the allotment of shares, and on the general business of the Company, are to be addressed.—Offices, 24, Lincoln's Inn-fields, London.

CAMBORNE CONSOLS MINING COMPANY.—Notice is hereby given, that a GENERAL MEETING of the shareholders of this Company will be HELD at the Company's offices, 22, New Bridge-street, Blackfriars, London, on Thursday, the 17th day of October next ensuing, at One o'clock in the afternoon precisely, for the purpose of transacting the ordinary business of an Annual General Meeting of the shareholders, according to the provisions in the Company's Deed of Settlement, and that the said General Meeting will be made Special, for the purpose of confirming the resolutions passed at the Special General Meeting, held on the 23rd day of May last; and also for the purpose of considering the expediency of dissolving the said Company, and the best mode of winding up their affairs, with a view of abandoning the present constitution of the Company under the Joint-Stock Companies' Act, and to carry on and work the mines on the Cost-book System, and for adopting such resolutions, and giving such directions, as may be deemed necessary or advisable for effecting the purposes aforesaid, or in relation thereto.—Dated this 21st day of Sept., 1850.
By order of the Board of Directors, H. L. T. VON LUNOW, Secretary.

COPIAPO MINING COMPANY.—Notice is hereby given, that a DIVIDEND OF EIGHT SHILLINGS per share will be PAID on the shares of this Company, at the office, 22, Austinfriars, on Monday, the 14th October next, and following days. The dividend warrants are required to be left at the office (previous to the examination).—Please call between the hours of Twelve and Two.
By order of the directors, ROBERT CLARK.

TINCROFT MINING COMPANY.—THIRTEENTH DIVIDEND.—Notice is hereby given, that a DIVIDEND OF TEN SHILLINGS and SIXPENCE per share, being 7½ per cent. upon the paid-up capital of this Company, will be PAID on Wednesday, the 16th day of October next, and succeeding Wednesdays, between the hours of Twelve and Three o'clock.—The certificates are required to be left at the office two clear days, in order to be examined and marked.
Salvador House, Sept. 19, 1850. P. STAINSDY, Managing Director.

MINING IN SCOTLAND.

The parties tried in the Justiciary Court, on a charge of culpable homicide, in connection with the late fire-damp explosion at Airdrie (referred to in last *Mining Journal*), appear to have been acquitted, because the catastrophe was as traceable to the conduct of the miners themselves, in rushing into the pit with open lamps, as to any neglect of the necessary precautions on the part of the coal-master or the manager of the mine. It was stated in evidence that the explosion could only have occurred by the fire-damp coming in contact with an open lamp. One witness, an engineer, observes that "there are not, generally, more than two or three Davy lamps in a pit—the men will not work with them though they get them." It is surprising that the benefits of an admirable and ingenious invention should be lost in this way by the stupid obstinacy of the very persons whose lives it is intended and so well fitted to preserve. The existence of fire-damp in the pit was well known to the miners, who were in the habit of waving it out with their jackets. The awful consequences of the noxious gas coming into contact with flame must also have been known to them, if not steeped in grosser ignorance than we consider credible even in a mining population; and yet they entered the pit with open lamps, though science has offered to their use, at little cost, a light which would have conducted them unscathed through the element of destruction. It is really impossible by any precautions to guard men from danger who are so callous to their own safety; and, therefore, the jury refused to return a verdict of guilty against the master and his son, although it is plain from the evidence that they were not altogether blameless.

The neglect of the Davy lamps, to which we believe the late dreadful accident to be mainly attributable, appears to be alarmingly common in Lanarkshire. William Marshall, engineer, deposed as follows:—

"It is not usual in Scotland for all the miners to be supplied with the safety lamp, though one or two might be, even when fire-damp existed to a great extent. A safety lamp costs from 6s. to 10s. 6d. In England all the workmen are furnished with safety lamps where fire-damp exists. He could not say why they were not furnished in Scotland, but believed it was not from inattention. He presumed it was from not having been previously done. That precaution is neglected in Lanarkshire. It is common to find, in Lanarkshire, that fire-damp catches the lamp several times during a day. He never saw workmen fanning the damp out with their coats in the mornings, but he has been told that such is the case."

Any one who has been in the mining districts of England must have observed how universal the use of the safety lamp is among the English miners. Even every little boy who goes down into the pits has his safety lamp attached to his cap. We confess that we are considerably startled by the very different habit prevailing in Scotland, and especially, as it would appear, in Lanarkshire, because it never occurred to us that there might or could be such a distinction. In England, it seems to be the practice for the masters to provide the workmen with the lamps, afterwards deducting the cost of them doubtless from their wages. It is a wise custom which thus throws the superior intelligence and forethought of the employers as a guard over the lives of the employed; and it might very prudently be imitated in Scotland, where the coal-masters may learn from this trial the imminent risk they run of being charged with the entire culpability of accidents for which they are only partially responsible. It is clearly the interest of the masters that the miners should be provided with safety lamps, and compelled to use them—it is equally the interest of the miner; and the authority of the masters may most justly and properly be intreated to enforce a regulation in which the safety of both are so closely concerned. We can hardly deem it possible that any pit-owner in Scotland, after the warning which has now been given, will consider that he has done his duty until the Davy lamps are brought into common and constant use among his men. After such revelations as have been made on this trial, indeed, we would consider it no undue stretch of power if the Legislature were to render compulsory the use of a preservative so simple, so efficacious, and yet so stupidly neglected. The State may wisely take mercy on those who are so infatuated as to have no mercy on themselves.

The pit in which the late catastrophe occurred was badly ventilated. The "cube" was too small, and imperfectly constructed; and there was either no funnel, or a very bad one, to conduct the heated air to the pit's mouth; and on the morning of the accident there was an evident want of precaution in examining and preparing the pit before the men entered it, after two days' absence. These are the faults jointly of the master, the manager, and the overman, the latter of whom fell a victim to the explosion. The whole circumstances of the case exhibit the necessity of more stringent inspection, in order to keep both masters and men alive to their interests and duties; and we trust that the moral effect of this trial, which ought to operate as a law of itself, will not be lost upon any who have control over mining operations in Scotland.—*North British Mail*.

ANOTHER SUFFERER FROM A LIVER COMPLAINT CURED BY HOLLOWAY'S PILLS.—The wife of a respectable tradesman, residing in the neighbourhood of Thrapstone, was suffering for more than two years from a severe liver complaint, during which period she received the best medical advice, but without deriving the slightest benefit therefrom. She then made trial of Holloway's pills, and by their use alone she has been restored to perfect health; the name of the party cured is not made public, but Mrs. Collier, bookseller, Thrapstone, can vouch for the authenticity of the case. These pills are also an infallible remedy for indigestion, bilious attacks, headaches, and all disorders of the stomach. Sold by all druggists, and at Prof. Holloway's establishment, 244, Strand.

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THE GOLD MINES OF BRAZIL.

At the Royal Geological Society of Cornwall, Mr. William Jory Henwood, F.G.S., read a paper on the metalliferous (gold) deposits of Brazil.

The gold-bearing strata consists of granite, talcose and clay-slates, and a granular rock of quartz and talc, locally called Itacolumite, in which the latter is sometimes replaced by oxide of iron. These are followed by the *Jacotinga*, the principal auriferous rock, which is for the most part composed of specular iron ore, and oxide of manganese, but sometimes contains talc, mica, and quartz also. A rock very closely resembling that beneath the *Jacotinga*, but generally rather less quartzose, succeeds; and this is overlaid in many places by calcareous strata. No organic remains have yet been found in any of these formations. The gold is either disseminated through the rock, and in the short unconnected strings and masses imbedded in and forming integral parts of the strata, in much the same manner as tin ore occurs at Carlsbad, and in the small veins at Balleswidden, Beam, St. Agnes, and Drake Walla, or disposed in veins or vein-like masses, as it is at Candonga, Morro Velho, Gongo Soco, Cocais, and Bananal; or again, in a sandy, or gravelly state, mixed with other detrital matter, in which case, as in that of our stream tin, the quality is far superior to that of the metal obtained from mines. A fourth mode of occurrence owes its origin to the workings on the other three, for it consists of the finer and lighter particles which escape during the extraction and cleaning of the gold obtained from the strata and veins, and which are often carried by the rivers several miles before they subside. This is obtained from the present beds of rivers; and after heavy floods, it is also collected from the grass and brush-wood which clothe their banks; but it is wrought only by the very poorest classes, and seldom yields them more than a very few pence a day. He next described the large profits which had been yielded by the mines of Gongo Soco and Morro Velho. The proportion of gold extracted from the strata in Brazil, he estimated at two-fifths of the whole. The proportion of gold extracted from stream works and beds of rivers, he estimated at one-tenth of the whole. The first discovery of gold known to the Portuguese authorities was in 1695, and from that time to the end of last year, the writer calculates, by the aid of Eschwege's work on Brazil, and by assistance of the Government officers, that 63,000,000 sterling worth of gold had been extracted from the Brazilian gold workings. To the end of 1846 (the latest returns he has had access to), the Russian gold washing had yielded about 20,000,000; and Sir Roderick Impey Murchison considers the returns from California at 1,500,000 per annum. The latest Russian accounts show a produce of more than 3,000,000 annually, and they, as well as the Californian, are still on the increase. The value of the Brazilian workings seems never to have much exceeded 1,000,000 a-year, and it has for a long time been on the decline; the present produce is calculated by the best authorities at about 6000 or 7000 lbs. of gold per annum, worth from 220,000l. to 27,000l.; of which about one-half is extracted from mines worked by British skill and capital.

The gold of Candonga, Gongo, and Bananal, is alloyed with palladium, as well as with some silver, and a little platinum; at Fazenda it is mixed with native copper, and this is probably the case in several other mines; at Morro Soco, large quantities of Tellurium are mixed with the gold; and the sulphuret of bismuth was occasionally found at Catta Branca. Crystallized gold is rare, but the little which occurs is chiefly obtained from the present beds of rivers; whence like our own crystalline minerals, it is doubtless derived from the shallower portions of the veins or strata. Iron ore of the richest description occurs in inexhaustible abundance, and the only circumstance which can interfere with that metal becoming hereafter the staple of Brazil, is the indiscriminate destruction of the forests, and the absence of coal. The author never saw a regular cross-vein in any part of Brazil, but was informed by the intelligent German engineer, Mr. Von Helmsreich, that wide granitic cross-veins traversed the gold vein at Candonga.

With the assistance of Eschwege's Statistical Accounts, he estimates the number of labourers employed in extracting gold at about 18,000, of whom perhaps 10,000 are slaves, and the remainder freemen; and comparing their numbers with the produce of their labour before-mentioned, it appears that each person collects on an average only about 20l. sterling worth of gold in the year. So small a return must long since have led to the abandonment of this pursuit, were it not for the extremely cheap manner in which the natives and their slaves are supported; and for the stimulus afforded by the immense prizes even yet found by the more fortunate miners. Still, with every possible allowance, it appears that capital may be invested in our own mines with far greater chances of success than are offered by the Brazilian gold workings. About 2000 slaves are employed in the Anglo-Brazilian mines, of whom, perhaps, 1200 are the property of the companies; the remainder are hired from native slaveowners; they are all well-fed, clothed, and housed. But notwithstanding our laws prohibit British subjects from purchasing negroes, it is deeply to be lamented that they are silent on the subject of hiring; a circumstance still tending ample advantage of by too many of our countrymen, who thus supply themselves with slave labour, and thereby give the African slave countenance and encouragement; whilst they as directly contribute to the profit of his abominable traffic as if they had been actually buyers. A short experience will satisfy an unprejudiced observer that the emancipation of the slaves without previous training in self-control, and in the arts and duties of civilized life, is rather inflicting mischief by setting at large a savage who will return to barbarism, than conferring a benefit or raising a fellow-creature in the scale of humanity. The author, soon after his arrival, established a place of secure deposit for those blacks who wished to economize their earnings—founded a system of rewards amongst them for the finest poultry and pigs—for the most neatly kept gardens—the cleanest houses, and for the best general conduct—opened a school for the negro children, and added to the number he found already learning handicrafts. A strong spirit of emulation was soon excited amongst them; and subsequent observation showed that many of the slaves might with equal safety and advantage be entrusted with absolute freedom. Several adults were, therefore, emancipated; and the excellence of their subsequent conduct gave gratifying proof that the care and culture bestowed on them, had not been in vain. A similar boon was also conferred on many children of parents who though themselves still slaves, gave evidence that their offspring would be brought up in habits of order, sobriety, and industry. Where the dominant race counts less than one-fourth of the numbers of its captives, a social revolution cannot be far distant; and we hope the free population of so vast an empire will see and profit by an example, which, if regarded in time, may at the eventful period peacefully effect that change, which must be otherwise wrought about by a catastrophe too horrible to contemplate. It is a fact well known in the interior of Brazil that the greater scarcity and higher price of slaves now than formerly, ensures that unfortunate race much better treatment at present than they received when their loss could be supplied from the market at the low rate which anciently prevailed; a fact acknowledged by every native slaveowner. This scarcity, greater value and increased comfort, are all the results of our blockade; and thus the blessing of British humanity is daily felt by the remotest corner of Brazil.—The paper was of very great length, and contained numerous descriptions of mines and scenery; it was illustrated by an extensive and beautiful suite of gold specimens.—*West Briton*.

THE COAL TRADE MOVEMENT.—A deputation from the Wigan Coalowners Association, consisting of Mr. R. A. Thicknesse, M.P., Mr. James Branker, Mr. Jerdein, and Mr. William Laird, have had an interview with the traffic committee of the London and North-Western Railway Company, the object of the deputation being to impress on the traffic committee the importance of providing at their two dock stations proper accommodation for the coal trade; the high level at their Waterloo station for the shipment of whole cargoes and large quantities of coals; and at their Wapping station a connection with some convenient dock, on the low level, for the purpose of delivering small quantities of coal for ballast to ships, requiring to fill up with other goods. The deputation were very courteously received, and orders were given to the proper officers of the railway company to prepare plans and estimates of so much of the work as fairly belongs to the railway company. If this interview should lead eventually to the shipment of coal, at the two points above named, it will put the coal proprietors of the St. Helens district in possession of a much more economical and speedy method of shipping coals than they have at present at Widness Dock, and will most probably save the Liverpool Dock Trust from the competition of rival coal docks at Garston, as well as ensure to them a large and increasing revenue from a trade which only asks the ordinary facilities granted at all other coal ports.—*Liverpool Advertiser*.

REDUCTION IN THE PRICE OF COALS.—Now that the winter is approaching we do not think a more acceptable announcement could be made to householders, especially those of the middle classes, than that which heads this paragraph. There is no better coal in the world than that of the Ince-Hall Company; their Arley is equal to the best coal ever raised, burning without dirt, cheerfully and brightly to the last. Their King coal is scarcely inferior to their Arley, being the quality hitherto generally sold here as the best. The discovery of the Arley on their domains, at a vast depth, has, however, put them in possession of an article of the highest quality, and this, as well as the King, they offer to the people of Liverpool and the vicinity, at prices which will cheer the hearts of all who love a clean and comfortable fire; and what Englishman does not? Their Cannel, famed for its cheerful, crackling, brilliant flame is offered at a great reduction, so that many who have not hitherto been able to procure it, may now enjoy a luxury which has long been confined to the wealthy. The coals known as Pemberton Four-feet and Ince Four-feet, particularly the former, are fit for consumption in any family. The spirit which has urged this company to offer the inhabitants of Liverpool, Seacombe, Egremont, &c., good fuel at reasonable prices cannot be too greatly applauded, and our wealthy and benevolent townsmen will be glad to know that the poor will be enabled, in the cold season that is approaching, to obtain supplies of a necessary scarcely less important than food, at a cost so considerably reduced.—*Liverpool Times*.

FOREIGN INTELLIGENCE.

SOUTH AUSTRALIA.—Letters and papers have come to hand from Port Adelaide to the 25th June, which are, however, only a few days later than previous advices. Mining enterprise continued to be vigorously prosecuted. Several new and important discoveries had been made, and speculators in the shares of the various companies were active in consequence. Burra Burra shares had advanced 15l. each, having reached 180l. buyers. Princess Royal were 86l. each, and Mount Remarkable 10l.

GOLD WASHING IN AUSTRALIA.—At Balhannah, Mr. Adelberg, a Russian, performs the washing by means of a machine, which he has himself invented. The soil is taken from the river, washed in this machine, which reduces it to the value of about 40l. per ton, and it is estimated, by an expenditure of 8l. 10s., that a value of 25l. is produced. At Onkaparinga, Captain Phillips, a Cornish miner, is washing the ore in nearly the same manner as tin streaming is pursued in Cornwall.

CALIFORNIA.—The steamer, *Philadelphia*, has arrived at New York, bringing dates from California to the 15th August, and \$1,500,000 worth of gold dust, with a large amount of gold in specimen of heavy lumps of the precious metal. The Ohio United States mail steam-ship from Havana, with the California mails, had brought half a million dollars of gold dust, on freight, and in the hands of passengers. It is estimated that California has sent into the world, during the past two years, full \$150,000,000 worth of gold dust, which has been distributed as follows:—

Production of Gold in California, to August, 1850.

Shipped to the United States	\$30,000,000
Taken to Oregon by miners	10,000,000
Taken to Mexico by miners	20,000,000
Taken to England through Mexico	15,000,000
Taken to England, via Panama	20,000,000
Shipped to South America	25,000,000
Shipped to Sandwich Islands	5,000,000
Shipped direct to England, via Cape Horn	10,000,000
Shipped to other parts of the world	15,000,000

Total

The accounts given of gold placers, vast lumps of gold worth from \$2000 to \$6000 each, are more florid and tempting than ever. At Carron's Creek lumps worth \$19,000 had been obtained by two men in two and a half days—one lump weighed 11 lbs., as smooth as glass, and absolutely pure! At Feather River Dam, seven men obtained \$12,000 in five days. This dam is worked by 10 shareholders, and the shares are already worth \$3000 and \$4000 each; several dams are in process of formation, and the washings are expected to yield abundantly—10,000 men are engaged in the mines. Regulations are established among the miners, restricting new comers to the ground they select, and ruling that all miners on leaving a digging must take new ground in a new region. But alas! crime and murder prevail on the San Joaquin.

The following is a concise synopsis of the measure recently introduced by Colonel Fremont, the celebrated explorer of the Rocky Mountains, into the United States Senate, to regulate the gold workings of California. It will be observed that the bill, which has been carefully framed on the basis of the laws of Spain and Mexico, abolishes the tax of 4l. sterling per month now levied upon foreign miners, and throws the region open to all the world. Little doubt, we believe, exists relative to the success of the measure; and our readers, therefore, will place some value on the extract we now present:—"A Bill making temporary provisions for the working of the gold mines of California, and for the preservation of order in the gold mining districts.—Sec. 1. Twelve gold mining agents, appointed by the President, to be assigned to different mining localities.—2. Agents to grant permits to work gold mines, either by hand or machinery.—3. A permit to a placer shall be 30 feet square; and for a mine of quartz rock, 210 feet square. Only one permit to one company or one individual. Pre-emption rights of 20 days allowed to persons in the mines, after arrival of agents.—4. Abandonment of a place shall leave it open to another having a permit. Sickness shall not be counted abandonment. If a man dies his permit shall be taken as part of his effects.—5. Permits not assignable, but after being worked may be sold.—6. A register of permits to be kept.—7. A permit to work a placer by manual labour, of 30 feet square, shall be \$1 per month to the Treasury, and to work a mine by machinery the permit shall be \$50 per month.—8. For the discovery of new places or mines, a double permit shall be given free of charge, the discovery to be proved.—9. Provides for arbitration of disputed cases.—10. Agents to receive \$1000 a-year, and 5 per cent. on collections, and shall have no interest in any permit.—11. Provides a superintendent of gold mines at \$3000 a-year, and 20 cents a mile travelling expenses. His duty shall be to overlook the agents, and report their operations to the President. Superintendent to have no interest in the mines.—12. Imposes a penalty of \$10 a-day for working a placer by manual labour without a permit, and of \$100 a-day for working a mine with machinery without a permit; one-third part to the informer, one-third to the Treasury, and one-third to the agent. Case to be tried in the nearest court.—13. Provides that agents shall keep accurate registers of everything pertaining to the gold mines, permits, &c.—14. Law to be in force from the day that the agent of each shall proclaim and publish it after his arrival in his district."

The Richmond (Virginia) papers mention 88 bars of solid gold, weighing 8885 dwts., and worth nearly \$1 per dwt., which have just been brought to that city. These bars were produced in the Booker Gold Mine, in Buckingham, now owned by Messrs. W. M. Moseley and Co., and were the result of only 60 days' work. There are two other mines in Buckingham in successful operation.

GOLD IN CANADA.—The zeal for gold-finding, aroused by the impulse from California, still continues in other parts. In Virginia it is mentioned that gold mines are now being worked with a new amalgamator, which yields 25 per cent. more than was obtained by former processes, and the *Quebec Chronicle* gives the following account of what is called the Chaudiere gold district, in Canada:—"That the Chaudiere gold region is one of no ordinary value is daily becoming more and more apparent. The yield is continuous, and for the most part regular, the net profits of the company, now engaged in its extraction, being about 5l. per day; but, in addition to this return from the siftings of the auriferous gravel, there are lucky hits—times when a piece of the precious metal of some considerable size is met with. We have this day seen a piece weighing over a quarter of a pound, as pure as if it had been taken from the smelting pot—that is to say, unalloyed with gravel, or vitreous quartz, or any other foreign substance. Were this the only piece of any considerable size that had been found, it would signify little, but it is neither the first, nor the second, nor the third, nor the fourth. There have been many valuable pieces found, and there seems to be every prospect of finding more. We must congratulate the Chaudiere Company on their golden prospects, and we do so more readily as the more gold they obtain for themselves the more they increase the value of the province, and enrich others. The Sacramento has peopled California, and raised it to the position of a state; and it is yet difficult to tell what the Chaudiere may not do for Canada."

KONIGSBERG SILVER MINES.—The produce of these mines for the months of July and August have been respectively 1306 mks. 2 ozs., and 1380 mks. 2 ozs. fine silver. During the corresponding periods last year it was 1715 and 1885 mks. fine silver.

The lead mines of the Sierra de Gader, in Valencia, are producing an important influence on the neighbourhood. The town of Berja in particular has very much increased in trade and population, and a theatre has been lately set up for the mining population.

Advices from Antwerp mention that the Chamber of Commerce of that city has decided upon addressing a communication to the Belgian Government, recommending that the charge of transport by railway of coals, intended for exportation, be reduced to a rate sufficiently low to enable vessels, which at present go in ballast to Newcastle for supplies, to obtain the article in Belgian ports on terms equally advantageous.

The *Courier du Nord* says that the Minister of Agriculture, while recently visiting the coal mines of the Anzin Company, at Denain, discovered a rough diamond fixed in a stone which had been extracted with the coal.

EXTRAORDINARY QUICK VOYAGE.—The *Pakenham* arrived at Liverpool on Tuesday from Adelaide, with 750 tons (more than her registered tonnage) of copper ore, besides other cargo. Notwithstanding an extremely boisterous passage, the *Pakenham* has made the run in 104 days, which is unprecedentedly quick, when the very unfavourable nature of her cargo is taken into consideration, together with the fact of her having come round Cape Horn in the depth of winter. This vessel sailed from Liverpool in December last, for two ports in Australia, and, leaving out the time she was detained in the colony, has made the voyage round the world in 6 months 17 days.

SKELETONS FOUND IN A LEAD MINE.—Some miners were engaged last week in emptying out an ancient mine shaft near the Noon Nick Mine, in the parish of Bonhill, when, at a considerable depth, they came upon a number of human bones, partially intermingled with the old mine rubbish. As they proceeded with their work, many more bones were discovered, amounting in the aggregate to as many as would, if re-articulated, form three human skeletons, the skulls of each being in a tolerable state of preservation, and many of the teeth particularly so. The conjecture is that the bones are all that remain of three unfortunate miners, who were killed by the "running in" of the shaft.

THE ELECTRIC TELEGRAPH.—A letter from Verona of the 25th ult. says the first communications by means of the electric telegraph between this place and Vienna have just taken place. The line between Verona and Venice has been, for some days at work, and that between Verona and Milan will be soon completed. Thus in less than six months there have been established in the Lombardo-Venetian kingdom and in the Southern Tyrol, 240 miles of electric telegraph, the wires of which, cased in gutta serena, are buried in the ground about 2 feet. These communications are speedily to be extended to Mantua, as well as from Venice to Trieste.

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—I hope by the end of the present week that Field's engine-shaft will be sunk to the 80 fm. level—the shaft is without change since the last report. The shaft is now 100 fm. deep, and the level is 70 fm. level, east of engine-shaft, is from 6 to 7 ft. wide, worth for copper ore from 100 to 110 ft. per ton; this course of ore is extending east beyond the ore ground over the 60 fm. level. The shaft is now 100 fm. deep, and the level is 70 fm. level, east of engine-shaft, is from 6 to 7 ft. wide, worth for copper ore from 100 to 110 ft. per ton. These courses of copper ore are decidedly better than was calculated on, and no doubt will produce a great quantity of good quality copper ore. No other change to notice since my last report.

BEDFORD UNITED.—The cross-cut south from the engine-shaft is still in very hard troublesome ground, and consequently we have made but slight progress during the past month; there is a little water issuing from the end now, which indicates the proximity of the lode. In the 110 fm. level, east of Andrew's winze, the lode is 24 ft. wide, composed of caper, spar, muddle, and good stones of yellow ore, and is likely to improve; in the same level west the lode is 2 ft. wide, composed principally of spar and caper, and some spots of muddle and black ore. In the 102 fm. level east the lode is much improved; it is now full 4 ft. wide, with a moderate underlie, and worth from 6 to 7 tons of good yellow ore per fathom; the lode in the back of this level is also much improved—we have now four pitches set in it at 2a, 3a, 6a, and 7a. In the 100 fm. level east the lode is 3 ft. wide, producing a saving work, but not quite so productive as it was; in Andrew's winze, sinking in the bottom of this level, and now about 10 fathoms below the 103 end, the lode is 3 ft. wide, and worth from 4 to 5 tons of good yellow ore per fathom. In the 90 fm. level we have resumed driving east by the side of the lode, and hope to get into more favourable ground shortly, when we propose to sink a winze to the 90 fm. level, to prove the ground and for ventilation. Evans's rise, in the back of this level, is not yet holed, but will be in the course of a few days. The driving east, in the 70 fm. level, is suspended until Evans's rise is holed, and better ventilation obtained. The cross-cut north, in the 47 fm. level, is progressing favourably at the rate of 4 fms. per month, and in good clear fillias, with occasional small branches, containing muddle and spots of ore. The tribute department is yielding the usual returns as to quantity, the quality being about 14 better than for some time past. We are preparing to prove Deive's Kitchen, by clearing up the shallow adit and costaining, with a view of being better able to determine the most eligible spot for sinking a shaft.

BRINTAIL.—We have dressed 10 tons this week, and will try hard to do as much next. The mine is looking admirable, but we are so full of stuff in the mine, and on the flooring, that I am going to stop the men working, as they cannot work to advantage, and drive a cross-cut north about 30 fms. east of Hill's stopes. The stopes in the 5 fm. level has improved eastward; the end is looking promising, and will yield 24 tons per fm. The boundary cross-cut has not yet reached the lode, the ground having got much harder. We have full three months' work for one crusher now broken in the mine, and most of it of rich quality. We are preparing for the other crusher, so that no time may be lost in getting it to work after its arrival here.

BUTTERDON.—The engine-shaft is sunk 17 fms. 2 ft. from surface, where the ground is a little harder. Since my last report the sinking of the shaft has been delayed part of the time, in consequence of the men being employed in dividing and casing down the shaft. The boiler is on the mine and fixed, and other parts of the engine are being put together with all speed, and I hope to get ready for working in or about six weeks from this time.

CALLINGTON.—The lode in the 125 fathom level north is at present poor, being disordered by a small cross-course; the lode in the 125 south is about 8 in. wide, producing good stones of silver-lead ore. The diagonal shaft, sinking below the 112 fm. level, is now down 7 fms., ground just as last reported for sinking. The lode in the 112 fm. level south is 9 in. wide, yielding work of good quality. In the 112 fm. level north, at the south mine, no lode has been taken down since last reported. In the winze sinking below the 112 fm. level south the lode is about 8 in. wide, opening moderate tribute ground. We expect in the course of another fortnight to communicate this winze with the 125 fm. level, when we shall be in a position to set two additional pitches in the back of the latter level. At Kelly Bray, in the engine-shaft, we have nothing new to report on—ground still hard for sinking. We have a pair of men putting in air pipes, &c., in the 70, preparatory to their rising in the back, which they will commence to-morrow.

CALSTOCK UNITED.—The 42 fm. level has been driven this week about 10 ft.; the pitch over this end continues to yield very good work, and is let to four men, at 13s. 4d. in 14—this the taking paying returning charges, and to continue until the engine is at work. The pitch on the western side of the cross-cut is let to two men, at 10s. in 14; this pitch is also yielding good work. The north adit has been driven this week 1 fm., and is now 11 fms. deep, and is in good clear fillias. A great quantity of water is coming from the end. We are not far from the lode.

CARADON VALE.—I shall be better enabled to send you a report of this mine about 10 days by that time they will drive a little on the lode west through the cross-course; but, judging from present appearance, I have every reason to believe that this mine will make ore at a shallow depth under the present workings. Those beautiful branches of solid copper that are running in the vicinity of the lode must be evidently produced by a greater body; the strata is, without a doubt, equally favourable with any district I ever saw.

CARTHER CONSOLS.—The summen have now completed the plat in the 75 fm. level, and on Monday (the 30th Sept.) will commence sinking for the 85 fm. level. The lode in the 75 fm. level north looks very well, as it does also in the south end in this level. The lode in the south end, 65 fm. level, still continues to look as well as it has at any former period; we have now about 2 fms. of it taken down; and I have this day (Sept. 28) raised the lode in the bottom of this level north, where there is a very good lode. The mine throughout, in the tubwork and tribute departments looks remarkably well.

COMBLAWN.—In handing you a detailed report of our proceedings here since we first commenced the walls of our engine-house, which was on the 14th Feb. last, I have to observe that we have completed the engine-house, with the exception of plastering inside, boiler-house, stack, coal-shed, and iron-yard, and bolt-pit, and have taken down the engine at Wheel Marthia, removed and refixed it here, and set it to work on the 27th May last; also made and erected new capstan and shears, fixed whim, &c. Since that time (27th May) we have cleared up, cut down the engine-shaft 21 fms. below the adit, or 28 fathoms from the surface, fixed all the pitwork, and divided down the adit, and made every thing complete to the bottom. After clearing the shaft 7 fms. below the adit, we intersected the north lode going through the shaft, and a level extended east on its course 8 fms. 2 ft. There is also a cross-cut driven south 13 fms. 1 ft., where the south lode is cut and two levels driven on its course—east 5 fms. 3 ft., and west 2 fms. 1 ft.—and composed of spar, dark claystone, muddle, &c. In the 11 fm. under adit, we came to another cross-cut driven north, and the lode cut 9 ft. from the shaft, where there is a level driven east, but was full of attle; we have now cleared it, and find it is a level driven east 4 ft.; the lode is 3 ft. wide, containing spar, caper, and muddle. There is also a level driven west 33 fms., where there is a rise 3 fms. high, and another level extended still further west from this rise 33 fms., and the lode just of the same appearance as the lode in the eastern end; the backs in this level are worked away 5 fms. high; there is a winze sunk below this level 10 fms. from the shaft, but to what depth I cannot say, as it is full of mud and water. In the 20 fm. level there is a cross-cut driven north 12 fms., where the lode was cut, and a level driven west on its course 2 fms. 2 ft.; the lode is about 6 ft. big, composed of spar, caper, and strings of lead, and of a more kindly appearance than the levels above. I have sent to the office by this post a box of lead from this level; there is also a cross-cut driven south from this level about 5 fms., where there was a small branch of spar and muddle, about 1 ft. big, intersected. There is also a cross-cut driven south from the shaft 3 fms. 1 ft. 6 in., where was cut what is supposed to be the south lode; and I have put the men to open on it 1 fm., east and west, at 90s. per fm.; when this is done, I shall be able to form a more correct opinion as to the character of the lode. For the further development of the mine, I should have recommended the engine-shaft about 15 fms. deeper, but, according to the dip, we shall cut the north and south lode, seen in the 20 fm. level at the lower mine; and I have no doubt when this lode forms a junction with the east and west lodes above referred to, it will prove productive—being a parallel lode with that at the Callington Mines, if not the same. Before we commence sinking we shall have to cut a plat in the 20 ft. big bearers and cistern, and put the two lifts into it; I should also recommend driving the 20 west so far in as where the winze is sunk below the 11 fathom level. Our costs for the last few months have been rather high, which is owing in part to the materials that have been brought in for the lower mine—such as horizontal rods, capstan, shears, and bolts, and are nearly all ready to fix, and which I expect will be completed in a month from this time. The only heavy work we require now is the 30 fms. of pitwork and the capstan rope; after these are in the mine, our monthly cost will be considerably reduced.

EAST GUNNIS LAKE.—We set the new wheel to work on Friday last, and I am happy to say that everything was found to be in a most efficient state, and I have no doubt the water is forked from the shaft ere this. In one hour after the wheel was set to work we could see that the three levels were being drained.

EAST WHEEL GEORGE.—The lode in the 12 fm. level, east of engine-shaft, is from 4 to 5 ft. wide, composed of spar, peach, and ore; a kindly lode, which, in my opinion, promises to prove more productive at a deeper level; the lode in the 12 fm. level, west of engine-shaft, is improved in appearance since my last; the horse of fillias, named in my last report, appears to be wearing out, and the branches again forming into a regular lode, which is producing some saving work. The lode in the stopes in the back of the 12 fm. level, west of engine-shaft, is about 15 fms. deep, and is being disordered by a horse of fillias. The summen are in course of fixing the standing lift in the 12 fm. level, which we hope will be completed in the course of a day or two, when they will again commence sinking the shaft. We have sent off some ore to Plymouth, and I expect we shall sample, on Tuesday next, about 20 tons of good quality ore. I am just now come up from underground, and I have pleasure in stating that everything connected with the working of the mine is going on quite satisfactorily.

ESGAR LEE.—The caunter lode, in the deep adit of Owen's winze, has not been taken down in the past week; when last reported it would yield 1 ton of ore per fm. The caunter lode in the 12 fm. level, east from the surface, has not been taken down in the past week; when last reported it would yield 4 or 5 cwt. of ore per fathom. Since my last we have set six men to rise and stopes in back of the 12 fm. level 5 or 6 fms. behind the present end, 4 fathoms or the month, at 22 1/2s. per fm.; the lode will yield about 1 ton of ore per fm. The other stopes are much the same as in my last, yielding about 1 ton of ore per fm. We shall, on Saturday next, sample 25 tons of ore.

GREAT SHEBA CONSOLS.—I have by this post sent you a box of ore, broken from the new lode cut in the lobby, the appearance of which is doubtless such as was never seen since this side of Maria; to such shallow depth, the copper, of course, looks well; but, for my own part, if there was not a speck to be seen in the lode, to such shallow depth, I should like it equally as well. To tell you the fact, I am not one of those who are quickly excited by seeing copper very rich at the surface; let me have rocks of muddle underneath a light gossan with quartz, and a little Fuller's earth, with fluor and felspar, mixed with sandy muddle and arsenic, rather than rich copper that is in a clay slate suiting those indications; of course, there are districts that this would not suit.

HEIGSTON DOWN.—The lode in the 45 fathom level produces some good saving work for copper ore. The lode in the 35 fm. level east is also large, composed of gossan, with a good leader of ore 6 in. wide on the north part of the lode; the rise in the back of this level, as also the winze in bottom of level and cross-cut south, are without important alteration. Hiltchins's shaft produces a little saving work for copper ore.

HOLMBUSH.—Very little work has been done in the 132 fathom level since our last report, in consequence of stopping the engine early on Thursday morning, and removing the two small 7 and 10-inch lifts from the 110 to the 130 fm. level, and sending down from surface and fixing the 16-inch lift instead, which work is completed in a satisfactory manner, and the engine again set to work on Monday morning, at two o'clock, and we hope the mine will be in fork some time to-morrow, after which we shall go underground, measure and set to the several pairs of men in the 132 fm. level, and we hope also to sink Hiltchins's engine-shaft 4 or 5 fathoms below the 120, with the aid of water barrels, previous to dropping the 10-inch lift, which we shall afterwards sink with, and be a great advantage, by way of taking up stopes in the softest part of the shaft. The lode in the 130 fathom level south is 6 ft. wide; at present it is very poor, composed principally of soft quartz and blende. The flap-jack lode, in the 130 fm. level, east of the great cross-course, is 14 in. wide, composed of muddle, spar, and stones of copper ore. We have set a rise to six men to be put up from the back of this level to communicate to the 100, at 21 1/2s. per fm., stent, or the month. The rise will be close to the great cross-course, where the ground is favourable for exploring, and we hope to accomplish it in four months; afterwards, we propose extending a midway level eastward, and sink a winze below the 100 fm. level to hole to it, thereby ventilating and laying open this piece of ground to advantage for stoping, &c. The flap-jack lode in the 100 fm. level, east of the great cross-course, is 2 ft. wide, producing stones of copper ore, and opening tribute ground; the pitch in the back of this level is very much improved of late, and is now set to six men at 3s. in 14; it is wrought 10 fms. above the back of the 100, and as no previous time has it appeared more promising to produce a great quantity of copper ore than the present.

KIRKCUDBRIGHTSHIRE.—I am happy to state that we have succeeded in getting out all the water from the mine again, and we hope to commence sinking Stewart's on Monday next. The lode in the 62 end west is 4 ft. wide, with spots of ore. The lode in the new shaft is 4 ft. wide, yielding 1 ton of ore to the fm. We have shipped off a cargo of lead again to-day.

LAMHEROEE WHEEL MARIA.—The water is forked at Davey shaft, and the men will commence working this afternoon. The tin lode holds good. Mr. Murray can come any time you appoint.

LEWIS.—Our summen have commenced sinking the sump whim-shaft under the 80 fm. level; the lode is 3 ft. wide, producing stones of tin. In the 80 fathom level there is no improvement. The new lode in the 70 fm. level, west of copper ore shaft, is 10 in. wide, worth 8s. per fathom. Cock's lode in the 70, east of tin shaft, is 1 ft. wide, worth 4s. per fathom. Ditto west, the lode is 10 in. wide, producing stones of tin. Cock's lode in the 70, east of copper ore shaft, is 4 in. wide, unproductive. Cock's lode in the 60, east of copper ore shaft, is 2 ft. wide, worth 15s. per fm. The new lode in the 50, west of copper ore shaft, is 18 in. wide, opening tribute ground. Cock's lode in the 40, east of tin shaft, is 18 in. wide, worth 8s. per fm. The new lode in the 30, west of copper ore shaft, is 4 in. wide, unproductive. The new lode in the 20, west of ore shaft, is 15 in. wide, worth 4s. per fathom; ditto east, the lode is 1 ft. wide, with stones of tin; the south lode in this level, east of copper ore shaft, is 8 in. wide, producing stones of tin. We shall fall short of the usual quantity of tin this month, in consequence of a breakage to the stamps.

LISBURN.—The report of the 7th inst. and setting-list show that there are nine levels driving through productive ground; two shafts and three winzes sinking also in ore ground, and 29 stopes and pitches, the produce from which, in September, is computed at 460 tons of lead ore. The estimate for October is 437 tons, 374 tons of which is from Logyias Mine, and 163 tons from Frognock.

NANTES.—The report states that 65 tons of lead ore were sampled on the 7th inst. In the 30 fm. level, east of Taylor's shaft, on the south lode, the lode is 5 feet wide, yielding 15 cwt. of ore per fm.; the stopes in the back of this level, on the north lode, have improved, now yielding 12 cwt. of ore per fm. The 20 fm. level, east on south lode, is 6 ft. wide, producing about 10 cwt. of ore per fm. The stopes in the back of the 15 fm. level, yield 12 cwt. of ore per fm. The stopes in the back of the deep adit level, and also in the middle adit level, at Gwathgob, yield 12 cwt. of ore per fm.

SOUTH BALLESWIDEN.—Oct. 1.—This mine is looking extremely well; we have cleared to the bottom, and have discovered a beautiful course of tin going down. Last week, four men in five days broke and hauled the surface upwards of 25 ft. of tin, and the tin was of extraordinary quality, and has occasioned much talk in the neighbourhood—in fact, from what is already discovered, the mine is worth upwards of 6000l.—Oct. 7.—The captain states that they are raising some beautiful stones of tin, and confirms his report of the 1st in every particular.

SOUTH MOLTON CONSOLS.—The lode in the 22 fm. level north is 2 ft. wide, producing 12 cwt. of lead per fm.; we have also two pairs of men stoping the back of this level, where the lode is producing from 7 to 8 cwt. of lead per fm. The lode in the 32 fathom level is 3 ft. wide, producing good stones of lead. We shall have to drive 50 fms. before we shall reach the same extent as in the 22 fm. level, though we are expecting daily to meet with a course of lead gone down from the 22. We are now busily engaged in dressing, and shall get a parcel of ore prepared for market as soon as possible.

SOUTH WHEEL TOLGUS.—The north lode, in the 54 fm. level west, is 24 feet wide, yielding some very fine stones of ore, and is larger and more kindly than in any of the other levels over this place. A rise from the 64 east is up 5 fms., averaging a 1 ton of ore per fm. A rise from the 42 to the 32 has laid open a good piece of ore ground. The 42 east, on the lode, is 12 inches wide, yielding 14 tons of ore. Good ore is expected that this is a continuation of the run of ore formerly seen in the 22, about 16 fms. further east than the end of the 42; the 42 west, on South lode, yields some ore, and is very promising; west, on the north lode, is has been without ore until within the last 2 fms.—It now produces some fine stones of ore, and is very promising. The 32 fm. level west, on north lode, has been driven 11 fms. since previous account, through good ore ground; a rise in the end of this level is up 5 fms., and the lode has continued equally productive all the way. 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ALTEN MINING ASSOCIATION.—Estimated produce for August :—

Mining Report from the 27th Aug. to the 17th Sept.

At a general meeting of shareholders, held here on the 7th February last, the directors explained to you the position of the smelting-works, and took your opinion on their proposition to provide a capital required at that time; they regret that you did not then agree with their proposition to make a call of 10s. per share, rather than, as was proposed by that meeting, to hold back the profits of the mine till they amounted to the sum required. The money was then wanted, and the mine has not up to this time provided much more than half the required sum; the operations have, in consequence, been crippled, and unfavourable sales have been of necessity made in consequence. The directors, feeling that there should be no further delay in placing the establishment on the footing which it ought to be placed upon, have called upon the shareholders, within the time prescribed by the rules, to pay up 12. per share on the 9000 shares into which the mine is divided, they themselves having already paid this call on their shares to the bankers to the amount of close upon 4000l.; they have also communicated with some of their more immediate friends, and doubt not that during the present week at least 3000l. more of the call will be paid in to the credit of the company; they look, therefore, to their fellow-shareholders with some confidence, and, after such an example, to the punctual payment of their several proportions.

MANAGER'S REPORT.

At our last meeting I proposed a call upon the shares, in order to supply a working capital for the use of the smelting department, which was negatived, by your not considering it desirable, and recommending the directors to apply the accumulating profits of the mine for this purpose; at that time, I expressed my opinion that such application would not be sufficient for the purpose intended, and, I regret to say, such has proved the case, as the directors, for want of available funds, have not been in a position to keep the lead produced from the stock of ores for a good market, and have been prevented from competing with other smelters. The loss on the operations have partly occurred from the great competition in purchasing ore, partly from the drop in the price of lead, and partly from bidding so high a price for the Tamar Mines' ores, for their full protection; but although this latter swells out the apparent loss to nearly 1800l., it has been, in fact, no loss to the company, beyond the small amount of royalties paid upon the difference of real market value and the prices at which the mine had credit beyond such value; the real mischief has been the want of sufficient working capital, as it can be proved that, had we been in a position to use the desilvering process now applied, and not been unfortunate in regard to the falling in the price of lead, the works would have left a profit, although but small, from the severe competition. I trust that you know, in some cases, our competitors have seen the folly of not bidding a price which would leave a fair remunerating profit in the business of smelting, and that our future operations will be attended with success, and, at the same time, be a protection to the ores of the Tamar Mines, and for which you are aware they were established.

Looking at the works from their being first taken, by the shareholders, they cannot be said to have been a failure, as, besides paying back with interest all the money raised or subscribed by debentures, we have given the promised bonus of 4800l., and had the works also left from the proceeds of the mine about 9000l.; and I am also prepared to show that not less than 8000l. has accrued as advantage to the mine in the course of the five years, by their being in the possession of the company, and obtaining a full value for their ores, and which has been expended in freeing the mine of debt, and divided as dividends; thus, an advantage has been made on the one side, in five years, of nearly 22,000l., while on the other we have lost about 3000l. during the last year only.

As regards the actual working part, or smelting, the books will show that we have sold considerably more silver in the 12 months than we have paid for, and the unavoidable loss of lead by the old process is now reduced nearly 30 per cent., by the application of the desilvering process, which is now in full operation, thus enabling us, on this score, to compete with other smelters.

As regards myself, I can only say, as a large shareholder and manager of the company's works, I have done my best to improve the process of smelting and securing a certain class of ore, but for which our losses would have been much greater, and shall be happy to continue my exertions so long as my fellow shareholders have confidence in my recommendations. The mining department has progressed favourably, although, for the last 12 months, we have been at heavy expense and delay in the erection of an engine underground, for the greater facility of raising the ore from the deeper levels; this engine is placed in the 115 fm. level, in about the middle of the great shoot of ore, which has continued from level to level; it is now raising the ore from the levels below the 115 to the incline shaft, so that this shaft can be constantly employed in bringing the ore to surface, and will have the effect of increasing our sampling.

In the dressing department, I am happy to say that the shaking tables I introduced some years back are found to answer so as to reduce the cost of labour, and prevent a waste of lead. The mine agent's report will more particularly describe the operations of the last year.—FRANCIS N. JOHNSON.

CAPTAIN'S REPORT.

Oct. 1.—In handing you the annual report of these mines, I beg to commence with the south mine. The engine-shaft has been sunk, during the past year, 5 fms., which is now down to the 205 fm. level, and the end at this point driven south on the course of the lode 18 fathoms. The present level has been extended on the course of the lode 205 fms.—the greatest part of which has been through productive ground; but the 160 has yielded the greatest quantity of ore. An important feature is the 175 fm. level, which is getting near the middle slide, where we expect to cut the same run of ore ground which we have just passed through in the 160 fm. level; and, in order to make this available, we have erected in the 115 fm. level a steam-engine of 20-horse power, and also sunk Spurgin's shaft 8 fms. below the 145; this shaft will greatly facilitate our operations throughout the mine, as it will go down in the centre of the productive ground, and also when communicating with the 205 (the present bottom level), will be the main engine-shaft, as it will lift the water to the large pumping engine, and the stuff for draining at the incline and engine-shaft, thereby enabling us to work the productive part of the lode, without the expense of driving through the hard bar of ground adjoining the engine-shaft. Respecting future prospects, I have to say it will take about six months to communicate, the 160 end with Spurgin's shaft; and, when this is done, it will enable us to open more ground; and I have every reason to believe we shall increase our samplings. Walker's engine, in the 115 fathom level, was put to work on the 26th Sept., and answers the purpose admirably well. At the north mine the engine-shaft has been sunk, during the last 12 months, 9 fms., which is now down to the 96 fm. level, and a cross-cut driven west 6 fms., and intersecting the lode in this level—the lode at present being small; but we expect an improvement here as we extend operations north. The different levels have been driven on the course of the lode about 80 fms.—nearly the whole of which has been productive. I would remark that the 70 fm. level has yielded more ore than all the upper levels put together; and should the 80 and 90 improve in like manner as they extend north, there would be no doubt of its becoming a lasting and profitable mine.—J. SPAUGH.

The accounts were submitted, which led to a long and desultory discussion, in consequence of a loss appearing on part of the property of about 3000l., which Mr. BAWDEN considered might be avoided in future, by disposing of the works, and would have moved a resolution to that effect, but no second appearing, and the CHAIRMAN having explained that the call now made was merely to provide working capital, and that the directors, holding nearly one-third of the adventure, had already paid their call into the bankers, amounting to nearly 4000l., he trusted the other adventurers would cheerfully respond, as he entertained no doubt of the ultimate success of the undertaking. The adventurers should take into account, that since the establishment of the company 15,000l. had been divided in bonus and dividends; and he considered it rather ungracious, because they had not been so prosperous during the past year—owing to a want of capital—that any exception should be made to the report.—After some further remarks, the report and accounts were unanimously adopted, and a vote of thanks having been passed to the chairman and directors, the meeting separated.

COMBLAWN MINING COMPANY.

At a special general meeting of adventurers, held at the offices, King-street, Cheapside.—HENRY TREFUSIS SMITH, Esq., in the chair.—The usual preliminary business having been transacted, the balance-sheet was read, showing—Costs at the mine to the end of August, and in London to end of September, 4179l. 12s. 7d.; arrears of calls and cash at bankers, 1307l. 12s.—4310l. 4s. 7d.—Calls, 3387l. 15s.; liabilities, 922l. 9s. 7d.—4310l. 4s. 7d.—leaving a balance against the mine of 791l. 17s. 7d.—Messrs. Wright and Weldon (adventurers) were appointed auditors.—A report on the mine, dated the 7th inst., from Capt. Penland, was read, and it was resolved, the mine being in a fit state for inspection, that Capt. Puckey (of Par Consols Mine), and Mr. A. Murray, Jun., be requested to inspect and report fully on the prospects of the mine without delay.—A further instalment of 20s. per share, out of the call of 2l. per share made on the 15th August last, was ordered to be paid in 14 days.

EAST TAMAR CONSOLS MINING COMPANY.

The usual two-monthly meeting of shareholders was held at the offices, Threadneedle-street, on Tuesday, the 8th inst., J. Y. WATSON, Esq., in the chair.

The minutes of the last meeting were confirmed, and the account of receipts and expenditure was produced, showing a balance in favour of the mine of 458l. 8s. 1d.; and also an account of receipts and payments before the meeting on the 10th December next, showing a balance of payments over receipts of 891l. 11s. 11d.; and, finally, an account of assets and liabilities, showing a balance of assets over liabilities, of 794l. 0s. 1d., all of which accounts were passed. The cost-sheets of the mine for July and August, with the merchants' bills and vouchers, were examined and passed. A call of 2s. per share was made, to be paid on or before the 2d of November.

The following report, from Mr. J. Wolferstan, was read to the meeting:—No alteration of importance has taken place in any part of this mine during the past week, and I am, therefore, unable to make any addition to my last report, as regards the underground operations. The late heavy rains have increased the water considerably, and we are now obliged to work the recently erected engine at Gullett's shaft for a few hours daily, which keeps the whole of the south part of the mine effectually drained. We have now 50 men working in this part of the mine on tribute, at an average of 10s. in 12., and there is every prospect of their getting fair wages, and making a good profit for the adventurers. Gullett's engine-shaft is now being cut down, so as to make it sufficiently large; I expect the men will make it completely down to the 40 fm. level by the end of the month, when we shall be able to clear this level and my open more ground, and thereby, in all probability, increase the returns. At the same time, I confidently anticipate being able to decrease the cost, as the whole of our surface requirements are now complete, and the expenditure, therefore, will be limited to actual working cost.

SOUTH TAMAR CONSOLS MINING COMPANY.

The usual two-monthly meeting of adventurers was held at the offices, Threadneedle-street, on Tuesday, the 8th inst., GEORGE MACKAY, Esq., in the chair.

The financial statement was presented, showing the account of receipts and expenditure, by which a balance of 1008l. 7s. appears in favour of the mine; and also an account of receipts and payments before the meeting on the 10th December next, showing a balance of payments over receipts of 575l. 3s.; and finally an account of assets and liabilities, showing a balance of assets over liabilities of 1424l. 17s., all which accounts were passed. The cost-sheets for July and August, with the merchants' bills, were exhibited and passed.

The following report, from Mr. James Wolferstan, was read:—I have the pleasure to inform you that, since my last report, the lode in the engine-shaft, also in the north and south ends in the 113 fm. level, and in the north ends in the 100 fm. level, has been considerably improved, and is looking better than at any former

period. The south end in the 100 fm. level is not looking so well; the lode has become smaller, and not so productive; it is probable, however, that this is only a temporary fluctuation, as we had a very good lode for many fms. further south, in the 90 fm. level. In the 80 fm. level there is a large strong lode in the present end, and we are in daily expectation of its becoming more productive. In other parts of the mine there is no alteration to notice. We shall sample on the 16th inst., and I have no doubt we shall have 90 tons of ore, the produce of August and September. Notwithstanding the late heavy rains, we have no increase of water, which may be attributed to the north part of the mine being drained by Gullett's engine. The house for the new stamp engine is in a forward state, and will be ready by the time the engine is to be delivered on the mine.

GRAMBLER AND ST. AUBYN MINING COMPANY.

At a meeting of adventurers, held at the mine, on the 8th inst., the accounts were presented, showing—Labour cost for March, April, May, June, July, and August, 476l. 15s. 8d.; merchants' bills, 2117l. 9s. 8d.—688l. 5s. 4d.—By copper ores sold 28th March, 742l. 5s. 8d.; ditto 30th May, 539l. 12s. 2d.; sundry sales of tinstuff, 517l. 10s. 11d. (deduct lord's dues, 107l. 19s. 3d.)—1542l. 9s. 6d.—showing loss of 538l. 15s. 10d.—Balance in hand end of Feb., 587l. 10s. 8d.; call made 9th April of 2l. per share, 486l.—544l. 16s. 8d.; leaves now in hand, 111l. 0s. 10d.—The accounts having been examined and allowed, a call of 2l. per share was made, for the further prosecution of the mine.

The following report, from Capt. Wm. Richards and J. Michell, was read:—October 8.—Having completed the horizontal road, and placed the pitwork in Simmons's shaft, we are now in course of sinking said shaft, in which the lode is 4 ft. wide, a very kindly gossan, with good stones of ore. The shaft is about 15 fms. under the surface, and we have about 16 fms. more to sink to the deep adit, which we calculate will take about four months. The adit end is within about 15 fms. of said shaft, lode 2½ to 3 ft. wide, of a very promising appearance, with good stones of ore. This we expect, will also take about four months to drive under Simmons's shaft; we are also driving a 25 fathom level under adit, north from the old mine, to intersect a middle lode. These are all we are doing at present, except three pitches working on the old lode, at 12s. tribute.

WHEEL TREFUSIS MINING COMPANY.

At a meeting of adventurers held at the mine, on the 2d inst., a statement of accounts for July and Aug. was presented, showing—Labour cost, 186l. 12s. 2d.; merchants' bills, 2221l. 14s. 4d.; balance against mine, end of June, 6477l. 10s. 8d.—1058l. 17s. 2d.—By call, 686l. 6s.; leaving balance against adventurers of 4201l. 11s. 2d.—to defray which, and to carry on the future workings of the mine, a call of 1l. per share was made.—The following report, from Captain Thomas Richards, was read to the meeting:—

Oct. 2.—Since the last meeting, held 30th of July, our principal object of operation has been directed towards sinking the engine-shaft below the 14 fm. level; before commencing to do which, we had to cut open the old shaft, and fix the pitwork. The shaft is sunk 5½ fms. below the 14 fm. level, and, in course of sinking, we have had various "droppers" or branches underlying south towards the lode, most of which produce copper ore, and, from the change that has taken place in the granite, it is thought a good indication for copper ore, although it is harder ground. The lode in the 14 fathom level is south of the shaft 15 feet, with a north underlie, from all we have seen, not exceeding 6 in. in a fm.; consequently, unless an increased underlie, we shall sink some depth vertical, before expecting to see the lode intersected in sinking the engine-shaft. However, it is the present intention to sink the shaft 12 fms. below the 14 fm. level, before crossing-cut to the lode. The lode in the 14 fm. level, east and west of engine-shaft, will average about 2 ft. wide, with gossan, tinstuff, and a small quantity of copper ore; but in the last 3 fathoms driving the lode has been small in the 14 fm. level east. In consequence of the adit east of the engine-shaft being in a bad state, and timber crushed, we have commenced a "side tie" to get into the level further east, in which we have driven 20 fms., all in timber ground, and expect to hole to the adit in the course of the week. When accomplished, it will give an opportunity of judging the appearance of the lode as left off about 24 years since.

REHOSWYDOL MINING COMPANY.

The bi-monthly meeting was held at the offices of the company, Old Jewry, on Tuesday, the 8th inst.

P. D. HADLOW, Esq., in the chair.

The minutes of the proceedings at the last meeting of adventurers having been read, the SECRETARY read the report of the finance committee, and the accounts, which will be found subjoined. The report having been read, and the question put by the CHAIRMAN as to its adoption, Mr. ENGLISH rose, not only to comment on the report that day presented, but also to offer some few observations consequent on his visit to the mine. In advertent to the report, he expressed himself as dissatisfied with its contents being vague; at the same time, that he was surprised Capt. Davies should not have been present to afford explanation, more especially as Mr. Cumming was called upon to make a special report on the present occasion, which involved many points affecting the character of Mr. Davies, who should, in his opinion, have been present. He (Mr. English) proceeded to notice the various observations in the report, and particularly adverted to the "newly cut lode," where "there is a string of black-jack an inch wide, with occasional sprigs of lead ore." The report stated, that in the opinion of Capt. Davies he believed it could not fail in making lead ore; and, furthermore, that the discovery had "created the highest expectations of success in his (my) mind." Mr. English, in conclusion, expressed his opinion that no confidence could be reposed in the manager.

Mr. G. HADLEY, the purser, wished to say a word or two on the subject—some remarks had been made as to the outlay upon the mine, which was represented to be 28,000l. to 30,000l. It was only for him to refer to the books of the company, whereby it would be seen that not more than one-fourth part of such amount had been expended. In the first place the mine was divided into 2500 shares; of these, 2000 shares were taken up by the parties as free shares, to a certain point, representing 20,000l., and the remaining 500 shares paid their calls, as we understood, up to 10s. per share, or 5000l., and subsequently the others had paid their proportion of the further calls, the purchase money for the mine being, in fact, 25,000l. He, as purser, thought it only right to place the matter in a true light before the shareholders, so that no misapprehension might arise from statements put forward.

The report and accounts having been received, the CHAIRMAN stated that the meeting had been rendered special, for the purpose of receiving from Mr. Cumming a report upon the mine, and also explanatory of certain charges which had been alleged.

Mr. CUMMING accordingly addressed the meeting, stating, that as an adventurer he had visited the mines, and having grounds for supposing the funds of the adventurers had not been properly applied, and that the workings of the mine required supervision, or, at least, inspection, he had requested Capt. Trevelth, with Mr. English, to inspect the mines, so as to enable him to make a report to the shareholders; this, however, was found to be impracticable, for although Mr. English had been at the mine on four occasions, and Capt. Trevelth there twice, yet no information could be acquired, inasmuch that Capt. Davies not only refused to accompany either of the parties underground, but also declined in any way to give instructions to those employed. It was represented to him that 28,000l. to 30,000l. had been expended, and he did consider it only fair to the shareholders than an inquiry should be instituted; he would, therefore, propose a committee of four—viz.: Messrs. Hadlow, Capt. Whitmore, H. English, and W. E. D. Cumming, to inspect the books of the company, and further to have a report on the mine, and the application of the capital expended thereon.

A warm discussion ensued, which ended in the motion being virtually negatived, the numbers being six for, and eight against.—A motion, or amendment, was then again put, which met with the same result, the votes being nine in favour of the amendment, and seven for the original motion.—After a lengthened conversation, which terminated in nothing, the meeting separated.

The following report, from Capt. Davies, was read to the meeting:—

Prosser's level has been driven 9 fms. 1 ft. 10 in. further east along the lode; the strings of lead ore have quite disappeared from the lode, so that it now continues poor. In the roof of Smithy level, 2 fms. 0 ft. 8 in. were driven to communicate with the 17 fm. level; this has been accomplished. Davies' cross-cut has been driven 13 fms. 3 ft. further south. At the beginning of the present week, a cross-course running about 200 east of north was intersected; this, at its junction with the lode, no doubt will make ore. The total length of the cross-cut is 38 fms. 4 ft. About 21 fms. is the distance to be again driven. We have laid down a railway, and set air-pipes, so as to facilitate the working as much as possible. Hadley's cross-cut has been driven 15 fms. 1 ft. further south. A fortnight ago, I reported we had intersected and cut through the main south lode, which turned out poor. At the same time I stated it was not safe to drive along that lode immediately, but rather to drive further south, as a more mineralised part of the lode might be near. On finding the main south lode so poor, in Hadley's cross-cut, I made a series of drillings and surveys of that lode, on the surface and in the old works, when I was surprised to find that there were two lodes running nearly parallel to each other, and with the same dip, through the old works for a distance of about 130 fms., and finally separating, at an angle of about 6°, a few fathoms west of Hadley's cross-cut (this was demonstrated before Captain Whitmore on Wednesday last, who was so kind as to accompany me, and see the actual drillings on the surface, and in Hadley's cross-cut). On Friday, I am glad to say, the lode was cut 30 feet further south than the other lode, precisely at the point and the position I had explained to Captain Whitmore. On the footwall of this newly cut lode, there is a string of black-jack, an inch wide, with occasional sprigs of lead ore, and has a kindly and most promising appearance; indeed, I believe it cannot fail in making lead ore. As yet, we have only taken down about a foot of the lode, but it has created the highest expectation of success in my mind. I enclose you a plan of the cross-cut and two lodes as they have been cut; the total length of the cross-cut is 38 fms. 4 ft. In the 10 fm. level, 12 fms. of ore ground have been stopped, will yield about 5 cwt. to the fm. In the 17 fm. level, 11 fms. of ore ground have been stopped, will yield about 8 cwt. to the fm. Our cargo of ore shipped on the 6th September, 13 tons, sold at 10s. 6d. per ton. During the last three weeks our dressers have been engaged chiefly on the slime and waste, about two tons of which are dressed. They are now engaged dressing the ore raised during the last month. Our lettings for October are Prosser's level, 5 men at 4l. per fm.; Davies' cross-cut, 6 men, at 3l. per fm.; Hadley's cross-cut, 5 men, at 3l. per fm.; 6 men stopping ore ground in 10 fm. level, at 31s. per fm., including timbering; six men to stop in back and bottom of 17 fm. level, at 20s. per fm., and to drive the level further east, one fm. for 48s.; six men driving the Hope level at 30s. per fm. As soon as the men cut through the newly-discovered lode in Hadley's cross-cut, they will drive east and west on the course of the lode, for which we will have to advance the price a little.

From a statement of working for two months, ending September, it appeared that the number of fathoms driven was 65, and stopped 23; making in all 89, of which 64 must be considered barren ground, leaving the number of fathoms of ore ground stopped 25, at an average cost of 47s. per fathom for driving, and 32s. 9d. per fathom for stopping.

The following is the statement of accounts for Aug. and Sept.:—Balance from last account, 431l. 8s. 6d.; expenses for Aug., 136l. 7s. 10d.; ditto Sept.,

1587l. 17s. 11d.; salary to pursers, 12l. 4s. 10d.—737l. 16s. 1d.—Proceeds, per Friendship, 59l. 8s. 5d.; received on account of call, 2087l. 2s.; leaving balance against the mine of 4737l. 10s. 8d.—Net proceeds of the cargo, per Friendship, 127l. 2s. 4d.; arrears on calls, 169l. 4s.

[Mr. English having made a formal and written application for liberty to visit and inspect the mines, attended by a practical mining agent, the same was assented to, and we are given to understand that Capt. Sampson Trevelth and Verran will accompany that gentleman to inspect and report on the mine.]

DYFNGWYM MINING COMPANY.

The bi-monthly meeting of adventurers in this mine was held at the offices of the company, on Wednesday, the 9th inst.

P. D. HADLOW, Esq., in the chair.

The minutes of the preceding meeting having been read, Mr. HADLEY (the secretary) stated that Capt. Hosking had not transmitted the accounts, and, consequently, he was not in a position to submit them. He had, however, received a letter from their agent, which, with the report, he would read.

The report having been read, with a financial account made up by the pursers at the moment, there being no accounts rendered to the meeting, the CHAIRMAN put the question as to whether the same should be allowed and passed, which appeared to be very likely to take place, when Mr. ENGLISH rose for the purpose of making some few observations as the result of one or more visits to the mine. That gentleman stated that the bargains taken by the men were excessive, so far as the company was concerned—8l. or 9l. per month being paid to the men; while the ordinary wages did not exceed 55s. to 60s. That the operations of the mine were improper, inasmuch that the wheel was erected within 9 ft. of the boundary of the sett—the adjoining property being held by other parties; that the workings should have been in the centre of the sett on the deep adit, near Jones's stopes, so that the men might have worked in two ends, instead of erecting machinery on the immediate boundary, which would be most advantageous to their neighbours; but which, as he was informed, was not calculated to be of benefit to the adventurers. He also further stated that, in his opinion, he considered setting contracts, or bargains, for three months most injurious; and complained that while the duties of the agent were diminished, his salary had been increased 36 per cent., and which was grounded on the poverty of the mine—there being no ore in course of raising, nor did there appear to be any probability of such being the case for some time. He (Mr. English) also observed that, from the halvans, he would undertake to set them on tribute at 10s. in 12., and considered there was at least 3000l. to 4000l. worth of lead and jack; but which could not be rendered available from the circumstance of the wheel having been removed from its former site.—[The meeting, which was attended by only one or two adventurers beyond the committee, then adjourned. Whether the absence of the adventurers arose from their confidence in the officials, or from any other cause, it is not for us to determine; but we must regret, as at all times we do, where we find that shareholders, embarking their capital, do not deem it right to look after their own interests.]

MINING IN WALES.

SIR,—Having been called upon mining business further south than the Cardiganshire district in the past week, I have much pleasure in noticing that I find mining to be spreading prosperously into the surrounding counties. No doubt you know the ancient and celebrated mine on the property of the Earl of Cawdor, on the east bank of the Towey, seven miles from Llandovery. This mine has been worked for centuries upon three immense lodes, the largest of which forms a crest, rising above the surrounding hills, and appears as a very conspicuous object in the landscape, and may be traced along the district for a great distance. Hitherto the efforts of miners and capitalists have been confined to opening these lodes on the eastern side of the Towey, and they have succeeded in establishing the great mines of Nant-y-Mwyn, the profits of which have been very considerable. The object of my journey was to trace the lodes on the western banks of the Towey, on the property of the Messrs. Jones, the rich bankers, of Llandovery. We succeeded in discovering one of the lodes, with some ore in it, on the river, and have set men to cross-cut the face of the western lode. This mine, if noticed in your Journal, will be so under the name of West Nant-y-Mwyn. I found, within about two miles of Llandovery, a little mine at work, called St. David's. The work hitherto done has been the cross-cutting of a north and south lode by means of an adit, some 15 fms. from the surface. I was curious enough to look in, and found in the northern and a nice course of ore, about 2 ft. high, and 15 in. wide, the ore being beautifully crystallised, forming cubes from 1 to 2 inches in size. The lode in the upper part of the level, or forebrest, was of smaller size, but containing a similar description of ore. Several heaps of ore lay around on the surface; and I concluded, from a cursory observation, that the ore formation was due to an east and west lode, which will probably be met with in a few fms. to the north; but whatever may be the result, the evidence is in favour of there being much lead in the neighbourhood. I also heard a favourable report of the Carmarthen mines, in the immediate neighbourhood of the town of Carmarthen, which, it was said, were producing barytes and lead ore in abundance.

On returning to the neighbourhood of Goginan, we put a small mine to work on the property of the Rev. Morgan Williams, of Llanfair. This mine will be called Bronfloydd; a cross-cut has been driven 60 fms. to the lode; the lode is about 72 feet in width, about 6 feet of which will pay for taking away; a great portion of it is full of carbonate of lime, with a hard leader of quartzose rock in the middle, and schistose slate and copper ore on the north side. This lode is one of those crossing the very productive (of metals) Bwlch, Cwm Eirin Valley—among the mines of which may be enumerated Penrhydydd, Caeant, Bwlch Consols, Cwm Eirin, Cwm Sebon, Daren, and our new mine of Bronfloydd. These all cross a valley within a distance of two miles; and I think if this valley is properly managed, it will at no great distance of time rival the celebrated Valley of Goginan.

From this short notice you will see that we have commenced to open two new mines; and I consider that we are in some measure entitled to do so, as we have succeeded in putting the Court Grange and Daren Mines into profitable working. I hold it to be a good maxim to finish one piece of work before beginning with another. I expect in two months to get All-y-Crib into a paying state, so as to have time to devote to the developing of the other mines of this district.

I have heard from Bryntail that the ore ground continues exceedingly productive, and the yield in the last month was 30 tons, leaving a fair profit on a quantity that can be increased when additional crushing power is provided. At Daren we have been opening in a good body of ore ground—silver-lead ore and copper in the new adit. We shall return 20 tons of lead ore, and 7 or 8 tons of copper ore this month, which will leave us a handsome profit. I hear of the general prosperity of the surrounding mines. I believe almost every one that is properly treated is becoming a permanent and profitable property. At All-y-Crib the lode has been opened in on at distances of 5 and 50 fms. from the large discovery of ore in the lode previously alluded to in our reports.—M. F.: Oct. 10.

MINING NOTABILIA.

[EXTRACTS FROM OUR CORRESPONDENCE.]

CRAIG-Y-MWYN.—I have had an opportunity of inspecting this promising sett,—but as I believe that a detailed report will be shortly forwarded to the Journal, I need not enter into particulars. Crushers have arrived on the ground, and the first sampling under the new company will take place after the first meeting, in about a fortnight.

EAST SHARP TOR.—The lode in Hitchens' engine-shaft is a little improved since last reported, producing prun, more spar, peach, and capels, with fine rocks of gossan.

PEDDANDREA TIN AND COPPER MINE (near Redruth) has been commenced by a company divided into 512 shares, at 30s. each. The sett is of great length, and formerly gave large returns; the principal lords are Lord Clinton, E. Pen-darves, and E. Collins, Esqrs.; the lease has been granted for 21 years, at moderate dues. The reason of the former abandonment of the mine was the excessive price paid for labour and machinery, together with lowness of the copper standard, and the depreciation of the price of tin. It is anticipated, if worked economically, that it will give remunerative returns to the adventurers.

TRELOWETH.—In the 12 fm. level a good course of ore has been cut, producing good work both for the stamps and grinder; specimens of the ore have been sent to London, where are to be seen at the office, and are of a very encouraging nature, the more so as they have not been picked, but broken indiscriminately from the lode.

TRELYON CONSOLS.—The returns of copper ore have doubled in the last month, and the prospects altogether are highly favourable.

WHEAL SARAH.—It having been resolved at the last general meeting of the adventurers that the mine should be thoroughly inspected by Mr. Evan Hopkins, the necessary steps have been taken to fork the water in the engine-shaft; and a letter from Capt. Sands, dated 10th inst., states that he has received a sufficient supply of coals for the purpose, and he expects the mine will be ready for the inspection in about ten days. Samples of about 22 tons of lead ore have been sent to a London smelter for assay and sale.

MINING DISCOVERIES IN IRELAND.—The *Newry Telegraph* says that the existence of ore at Dandrum, on the Downshire property, having been satisfactorily ascertained, the working of lead mines is about to be undertaken, a respectable Welsh company having obtained a portion of land from the lord of the soil, on his visit to that locality in the course of last week. We hope also shortly to announce the realisation of the expectation formed relative to the existence of coal-fields on the Marquis of Downshire's property at Prospect, in the county Antrim, and of such ores as iron and lead, as well as coal, on that part of the noble marquis's estate lying convenient to Hillsborough.

MINES AND MINING.—No. III.

BY EVAN HOPKINS, C.E., F.G.S.

Public attention being now so much drawn to mining, it is very necessary that the distinctive characters of the different formations of minerals should be better known. There is a great difference between copper and tin mining, as regards profitable results, which the old miner is well acquainted with, but seldom the capitalist; their productiveness is often classed together in prospectuses as if they were alike. Again, because mines make deep in one locality, in a particular formation, it is too often supposed that all other mines must make deep, irrespective of their geological position, and thus leads, as is too frequently the case, to useless expenditure; whereas, there are formations favourable for making deep bunches of mineral, and others that produce but shallow ones. When the mine captain understands his business properly—that is, possessing a correct knowledge of the true character of the formation—he may adopt a system of working suitable to each, and often render both varieties profitable.

Unfortunately there is too much guess work with the majority, and when this is united to a feeling of indifference, as regards the consequences of the waste of capital, and the facility presented, by the excuse that mining is a lottery, of getting out of it, we need not be surprised at the common abuse complained of in mining speculations.

We have also very important points to consider when we come to lead mining: pure galena, and argentiferous lead, lead ores in sedimentary limestone and clay-slates, and the lead ore lodes in the primary clay-slates, have all their respective merits as mining questions. Those who cannot appreciate the difference between their several products and conditions, are not competent to report on their value as mining speculations. When we reflect that this island is merely the focus of British mining enterprise, and that it branches to every quarter of the globe, the capital being often left to the sole judgment of a mine captain, it will be evident that a mere local knowledge of one particular kind of mine cannot be sufficient to qualify a man to undertake the responsible office of reporting on mines.

The time has now arrived when mere theory and ordinary local practice of mining routine must give way to more solid practical knowledge, which, governed by correct principles, is considered an indispensable qualification to guide capitalists in their mining investments.

COMPANY OF COPPER MINERS IN ENGLAND.—The committee of shareholders, on Thursday, again met the Bank directors, in order to see if any arrangement could be entered into for the redemption of the mortgage on the works in Wales. We believe the sum of 50,000*l.* was offered to the Bank, which was refused. After a lengthened discussion, nothing decisive was agreed upon. The bills given by the securities are, the greater majority of them, due in the ensuing week, and there is every probability that, unless something definite is arranged, they will have to bear the brunt. A meeting of the securities will take place this day at Messrs. Crowder and Maynard's offices, in Coleman-street, when the necessary steps to be adopted in the present crisis will be discussed, and plans for an arrangement entered into. It would seem that, should this take place, a further sum of 100,000*l.*, which must be raised by the creation of new stock, will be required solely as working capital for the plant. The rejection of the bill for the amendment of the charter by the committee appointed in the House of Commons after it had been read a second time, was a fatal blow, which those interested in the company did not by any means anticipate. Had this been carried—and we believe it was merely thrown out owing to the absence of some legal technicalities—an easy solution to the embarrassments of the company would have been found. The securities for the money advanced on mortgage, among other wealthy names, comprise those of Messrs. Jones Lloyd, Glynn, Denison, &c.

QUEBEC MINING COMPANY.—We are informed, that the disputes with the Indians, which threatened the existence of this company, are now terminated. After the election of the agents by Mr. Angus Macdonnell and the half-bloods, the Government dispatched in the spring a body of troops to enforce obedience to the law; as might naturally be supposed, these were at a disadvantage in skirmishing in the backwoods against the redskins, with their local knowledge and guerrilla habits. The Government thus failed, had recourse to a measure, which, to our thinking, should have been adopted previous to granting the concession to the company—that is, to have negotiated with the Indians for the sale of the property. Mr. Robinson (brother to one of the Canadian judges) was the gentlemen selected to carry this difficult task into effect, and it has now been finally arranged that the Indians in giving up the occupation of the property shall receive the sum of \$16,000, and an annuity of \$4000 as long as the mining territories are occupied by the settlers.

BURRA BURRA MINES.—We are informed that a gigantic mass of copper ore of surprising richness, is to be sent from these mines to the Great Exhibition of 1851, as a specimen of the mineral wealth of South Australia.

NEW DISCOVERY IN THE TENACITY OF IRON.—We understand that Mr. Adams, the assistant manager of the Clarion Iron-Works, U.S., has made an important discovery in the manufacture of railroad and merchants' bar-iron from coke metal. It appears that the rails made from charcoal would crack or break under two blows. By Adams's process iron can be made from \$8 to \$10 per ton lower, and of a superior quality. The process has not been divulged, but the quality of the iron is much praised. A rail while hot was put into cold water, and afterwards attempted to be broken by a sledge hammer of 80 lbs. weight; 40 blows were given by six men alternately, and they could not even crack it. Charcoal iron costs from \$18 to \$22 per ton, while that of coke metal is only from \$9 to \$11 per ton—this in Philadelphia, in the coal and wood region. Norwegian and Swedish iron, solely made from charcoal, realises in New York from \$85 to \$100 per ton.

We cannot but call the attention of our readers to the erection of a powerful steam-engine underground, at the depth of several hundred feet below the bed of the River Tamar, in the Tamar Silver-lead Mine, Bernalston, by the aid of which, not only will large quantities of ore and stuff be raised to surface along the inclined plane leading to it, but likewise a large shaft sunk on the course of a productive lode. It is but justice to the spirit and energy of the directors to notice this interesting operation, more especially as it will lead to a development of mineral at greater depths, which could not otherwise be done.

IMPORTATION OF TIN.—The Revenue authorities have granted permission for tin in blocks, ingots, bars, or slabs, to be added to the list of articles allowed to be landed at the first-class wharfs on the river side, on importation into the port of London from foreign parts.

ACCIDENTS.

Peafowl Sacrifice of Life at Otham.—A dreadful explosion has occurred at the Riley Mine, Bent Colliery, by which sixteen persons have lost their lives. About two o'clock on Wednesday last, while some 25 or 30 colliers were at work, a portion of the roof fell in, and broke the wire-gauge covering of one of the Dary lanes, with which all the miners are provided. The consequence was the instant ignition of a mass of carburetted hydrogen, which had gathered in the mine, causing a most terrific explosion, and immediate death to those in the neighbourhood. Several hours elapsed before any one could be got out of the shaft, except four persons. At six o'clock the same evening five persons were got out—one dead, three are not likely to recover, and one seriously injured. On Thursday there were 16 found at the bottom of the pit, who, it has been ascertained were all dead; 10 have been recovered in the whole, but several of these are seriously injured. Mr. Butterworth, the owner of the mine, when apprised of the accident, caused every effort to be made to rescue the killed and wounded men from the mine—a work of much difficulty and danger, on account of the density of the choke-damp, which rendered it almost impossible for any one to venture into the mine. There was but one shaft sunk in this mine—ventilation being obtained by dividing part of the shaft by a wooden partition, or "bradshing," and the effect of the explosion was to destroy a large portion of this partition, thereby choking up the means of access to the mine, and rendering it very difficult to extricate the men who were ultimately saved. The inquest was to be held this day (Saturday). It should be generally known that by the new Mine and Collieries Bill, which received the Royal Assent on the 10th of August, under a penalty of 20*l.*, every owner or agent of a coal mine or colliery is bound to give notice of any accident in the pits, or any machinery connected with such pits, together with a statement of the probable cause of the accident, within 24 hours after it has occurred.

Norwood.—John Anderson, a pitman, was killed in this colliery by a fall of stone in the working. The roof appeared to have been timbered within 18 inches of the face of the coal; the deceased had spurs props by him at the time, so that no blame could be attached to any one.

Coal Poeth Coal Pits.—On Saturday last the men engaged at these pits went down to their work as usual, and becoming conscious of the presence of fire-damp, they immediately endeavoured to effect their escape; before this could be effected, an explosion took place. Three men were killed, and two others are in a hopeless state; none were burnt, as usual in such cases, but evidently suffocated. The mine had been ventilated in the usual way, but it appeared the miners preferred using candles to the safety lamp.

Blackrod.—James Black, a boy, 12 years of age, was thrown out of a tub while ascending the shaft of the Brink's coal-pit. There were four persons in the tub, and when they were about 25 yards from the bottom, it came in contact with the side of the shaft, and deceased was thrown out and killed.

Rosely Regis.—Samuel Brown was killed at a pit belonging to Messrs. Barr's, by the fall of an immense quantity of coal; he must have been killed instantly, as it was several hours before his body could be extricated from the large mass.

Bury.—Robert Greenhalgh was killed by a fall of roof in Mr. L. Duckworth's pit.

Prestigein.—William Finches was in the act of priming a bore, filled with gunpowder in the quarry belonging to I. A. Phillips, Esq., when an explosion took place, which carried Finches about 25 yards in the air, when from the concussion and fall, death ensued.

Washington.—William Hart went down in the pit with Richard Taylor and James Eatock; they had each a lighted candle, and Taylor carried 3 lbs. of blasting powder, wrapped in a cloth in his breast; when they had been down about a quarter of an hour an explosion of fire damp ignited the powder. They had been provided by Mr. Woodward, the owner, with safety lamps, but which they did not consider it necessary to use, as the fire-damp was so trifling as to enable the men to extinguish it with their jackets. W. Hart and R. Taylor were killed, and J. Eatock much injured, but likely to recover.

New Patents.

SPECIFICATION ENROLLED DURING THE PAST WEEK.

E. G. POMEROY, of Cincinnati, United States of America: For a new and useful process of coating iron and other metals with copper and other metallic substances. In order to prepare the iron or other metal for the dipping process, Mr. E. G. Pomeroiy first cleanses it with dilute sulphuric acid, then dries it over a brisk fire, and envelopes it in a paste or pulp of clay, after which it is a second time dried as before, when it is ready for the finishing operation. In order to carry out this part of the invention, a suitable bath of copper, or its alloys is prepared and kept in a state of fluidity. In this the iron is to be immersed for a length of time, varying with the size of the article. Thus, sheet-iron should be kept in the melted copper only a few seconds—for this reason, that as soon as impregnated (coated) it becomes "hot-short," and will break by its own weight; but if carefully handled when cold, it will be tough, and when rolled will present a bright surface, equal in appearance to copper or brass. In other cases the time required for coating will depend on the fluidness of the piece immersed, and on its being raised to a temperature at which the copper is in a condition to commence "impregnation." This may be attained by keeping the melted metal at a heat beyond the bare melting point. In all cases the iron should be immersed only so long as it will bear without becoming "hot-short;" and the toughness of the metal will depend on the amount of "impregnation" during the first dip. The immersion may be repeated till the coating is of sufficient thickness. The patentee observes that the usefulness of clay as a coating depends on the ammonia therein contained, which unites with the residual sulphuric acid of the first process, and neutralizes its action on the iron, at the same time preventing oxidation from contact with the atmosphere. The plates thus "impregnated" are suitable for sheathing ships, roofing, &c., and iron spikes or bolts for ship-building purposes thus treated, are stated to be, in consequence of their greater strength, preferable to those composed of copper alone; besides which, they are not liable to oxidation—the copper acting as a protection against the gallic acid contained in wood.

Claims.—1. The before-described process of coating or "impregnating" iron or other metals of all useful shapes and forms, with copper or any alloy of which copper forms a part—the said process consisting in cleansing the surface of the iron or other metal with sulphuric or other acid, defending the cleansed surface with a coating of clay or other aluminous earth, drying the same, and then dipping the article so coated into melted copper or alloys of that metal.—2. The employment of clay-paste for the purpose of protecting the surface of the metal from oxidation during the process of alloying, or coating the metal plates or pieces of metal, as set forth.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

C. Barry, of Salford, Lancashire, manager, for certain improvements in machinery or apparatus for preparing and spinning, doubling or twisting silk waste, cotton, wool, flax, or other fibrous substances.
C. Barry, of Salford, Lancashire, manager, for certain improvements in machinery or apparatus for cleaning, spinning, doubling, and throwing raw silk.
R. Beart, of Godmanchester, for improvements in the manufacture of bricks and tiles.
W. Wood, of Over Darwin, Lancashire, carpet manufacturer, for improvements in the manufacture of carpets and other fabrics.
W. H. Riebel, of Kensington, Surrey, gentleman, for certain improvements in machinery for preparing and carding fibrous substances.
W. E. Newton, of Chancery-lane, engineer, for improvements in manufacturing yarns.
J. H. Browne, Esq., of the Reform Club, Pall-mall, for improvements in the separation and disinfection of fecal matters, and in the apparatus employed therein.
W. F. Fernhough, of London, engineer, for improvements in locomotive and other steam-engines, and improvements in obtaining motive-power.
W. Hayden, Esq., of Windham, Connecticut, United States of America, for an improved regulator for regulating the draught of the silver on the machine, termed the "drawing frame."
A. F. Gurff, of Manchester, gentleman, for an improved method of extracting silver from argentiferous minerals.
J. S. Russell, of Great George-street, Westminster, engineer, for improvements in the construction of ships or vessels propelled by paddle-wheels, with a view to better arming the same.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

T. Thompson, Commander, Royal Navy, safety-lug for boats and vessels.
G. Aldred, Primrose-street Bishopsgate, plate mortice nut for a looking-glass.
W. Raymond, Dalton, life raft.
F. Flores, Birmingham, self-adjusting vertebral brace.
S. A. Hayes, Strand, apparatus for fractures of the lower extremities.
T. Key, Charing-cross, regimental case clarinet.
Clayton, Shuttleworth, and Co., Stamp End Works, Lincoln, combined threshing, shaking, and riddling machine.
H. Kilby and W. Harris, Cheltenham, portable hot-house.
J. G. Taylor, Great St. Thomas Apostle, self-adjusting spring for pins, brooches, and Allen and Moore, Birmingham, match box lid.
Mortley and Herbert, Newman-street, Oxford-street, clasp-fastener for bracelets, chains, and other articles of jewellery and dress.
J. Cartwright, Newton-wood, Chester, steam-boiler.
G. Harrows, Old Bond-street, railway travelling trunk—"The Panelastic."
G. Boulton, Great Dover-street, Borough, safety pin.
R. Brown, Sheffield, magnetic lightning conductor.
Elkington and Co., Birmingham, fountain.
W. Culverwell, Charlotte-street, Blackfriars-road, portable domestic vapour bath.
Fox, Henderson, and Co., Birmingham, and Spring-gardens London, suffer for ventilator.
Mill, Marshall, and Co., Ingram-court, Fenchurch-street, duplex flanged pipe joints.
W. Chapman, Johnson-street, Clomell, Tipperary, grain crusher, and regulating feed, for facilitating the grinding of meal and flour.
W. Lowe, Birmingham, bolt—"Mechanics' Magazine."

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Begbie's Hartley 15 3—Carr's Hartley 15 9—Claverling's New Tanfield 13 2—East Adair's Main 13 3—Hollywell 16—Jonas's Hartley 14 9—North Percy Hartley 15 3—Original Windsor's Pontop 12 6—Ravenworth West Hartley 15 9—South Pearl 12 6—Tandem Moor 13—Tandem Moor Butts 13—Towney 14—West Wylm 13—Wall's End Acorn Close 14—Bewicks and Co. 15 3—Bell and Brown 15 3—Elm Park 14 9—Gosforth 15 3—Heaton 15 3—Original Gibson 14 6—Middell 15—Walker 14 9—Eden Main 15 6 and 15 9—Bell 16—Belmont 16—Braddly 16 3—Hutton 16 3—Lambton 16 6—Russell's Hutton 16 3—Hesselden 15 9—Kellose 16 3—South Hartlepool 16 3—Whitworth 13 9—Adelaide Ties 15 9—Cowdon Ties 15 3—Seymour Ties 15 3—South Durham 15 3 and 15 3—Tees 16 6—Derwentwater Hartley 15 3—Hartley 15 3—Morgan's Stone Coal 25—Slips at market, 27; sold, 26.

WEDNESDAY.—Carr's Hartley 15 9—Claverling's New Tanfield 13 6—North Percy Hartley 15 3—Original Windsor's Pontop 12 6—Ravenworth West Hartley 15 9—South Pearl 12 6—Tandem Moor 13—Tandem Moor Butts 13—West Hartley 16 6—Wylm 15 3—Wall's End Acorn Close 14—Bewicks and Co. 15 3—Bell and Brown 15 3—Elm Park 14 9—Gosforth 15 3—Heaton 15 3—Original Gibson 14 6—Middell 15—Walker 14 9—Eden Main 15 6 and 15 9—Bell 16—Belmont 16—Braddly 16 3—Hutton 16 3—Lambton 16 6—Russell's Hutton 16 3—Hesselden 15 9—Kellose 16 3—South Hartlepool 16 3—Whitworth 13 9—Adelaide Ties 15 9—Cowdon Ties 15 3—Seymour Ties 15 3—South Durham 15 3 and 15 3—Tees 16 6—Derwentwater Hartley 15 3—Hartley 15 3—Morgan's Stone Coal 25—Slips at market, 27; sold, 26.

FRIDAY.—Bate's West Hartley 15 6—Begbie's Hartley 14 9—Chester Main 14 6—East Adair's Main 13 3—Hollywell 16—Jonas's Hartley 14 9—North Percy Hartley 15 3—Original Windsor's Pontop 12 6—Ravenworth West Hartley 15 9—South Pearl 12 6—Tandem Moor 13—Tandem Moor Butts 13—West Hartley 16 6—Wylm 15 3—Wall's End Acorn Close 14—Bewicks and Co. 15 3—Bell and Brown 15 3—Elm Park 14 9—Gosforth 15 3—Heaton 15 3—Original Gibson 14 6—Middell 15—Walker 14 9—Eden Main 15 6 and 15 9—Bell 16—Belmont 16—Braddly 16 3—Hutton 16 3—Lambton 16 6—Russell's Hutton 16 3—Hesselden 15 9—Kellose 16 3—South Hartlepool 16 3—Whitworth 13 9—Adelaide Ties 15 9—Cowdon Ties 15 3—Seymour Ties 15 3—South Durham 15 3 and 15 3—Tees 16 6—Derwentwater Hartley 15 3—Hartley 15 3—Morgan's Stone Coal 25—Slips at market, 27; sold, 26.

Delivery of coals, &c., in the port of London during the month of September:

Ships.	Tons.
Newcastle.....	217
Sunderland.....	282
Stockton, Middlesbrough, &c.....	198
Blyth.....	21
Scotch.....	111
Welsh.....	47
Yorkshire, &c.....	13
Small Coal.....	5
Cumin.....	3
Cinders.....	1
Total imported in Sept., 1850.....	758
Total imported in Sept., 1849.....	243,656
Increase.....	70,147

Inland coals, brought by canal, in the month of Aug., 1850, upon which the City's and other dues were received..... Tons 1821 05
Inland coals, brought by railway, the City's and other dues upon which were paid into the Chamber in the month of September, 1850..... 14,509 0

COMPARATIVE STATEMENT OF 1849 AND 1850.

Ships.	Tons.
Imported from Jan. 1 to Sept. 30, 1850.....	8940
Imported from Jan. 1 to Sept. 30, 1849.....	8576
Increase in the present year.....	364

COPPER IN AMERICA.—We are at a loss to imagine in what way the Americans ship their ores or dress them, when we read the accounts of their shipments. The propeller, *Independence*, brought down on the 11th Sept., to Saint Ste. Marie, on Lake Superior, about 120 tons of copper, in masses and stamp work from Cliff Mine. On board the *Independence* were masses weighing 5000 lbs., 4900 lbs., 4860 lbs., 4310 lbs., and a dozen weighing 3700 lbs., 3500 lbs., 2900 lbs., 2200 lbs., and such small quantities. At the North West Mine, a mass of 6000 lbs. was waiting for shipping; 100 tons had already been dispatched, and about 200 more was expected by the fall; in fact, it had become a every-day business to see cargoes of copper (query) arriving and departing. We are afraid that these are ores which are sent down in the rough state; consequently much more expense is incurred from the American view of looking grandiose than is necessary, or prudence and economy would dictate. The ores we have seen from Lake Superior are merely of the average per centage.

SINGULAR CIRCUMSTANCE.—A few days ago, while a shaft was being sunk in the neighbourhood of Redruth, the labourers came in contact with a stone, and by some means broke it in two. Much to their astonishment, a live toad jumped out, appearing in no way affected by its sudden release from imprisonment. It was subsequently taken by some gentlemen to Truro, and is now in the museum belonging to that town.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning, Eleven o'clock.

Bank Stock, 8 per Cent., 210 <i>l.</i> ex. div.	Belgian, 4 <i>l.</i> per Cent., —
3 per Cent. Reduced Ann., 96 <i>l.</i> ex. div.	Dutch, 2 <i>l.</i> per Cent., 57 <i>l.</i> 8 7/8
3 per Cent. Consols Ann., 96 <i>l.</i> 7 1/2	Brazilian, 5 per Cent., 50 <i>l.</i> ex. div.
31 per Cent. Ann., 10 <i>l.</i> ex. div.	Chilian, 5 per Cent., 42 <i>l.</i>
Long Annuities, 7 <i>l.</i> ex. div.	Mexican 5 per Cent., ex Comp., 31 <i>l.</i> 4
India Stock, 10 <i>l.</i> per Cent., 365 <i>l.</i>	Russian, 5 per Cent., 110 9/4
3 per Cent. Con. for Acct. 15th Oct. 96 <i>l.</i> 7	Spanish, 5 per Cent., 18 <i>l.</i>
Excheq. Bills, 1000 <i>l.</i> , 1 <i>l.</i> 6s 6 1/2 p.m.	Ditto 3 per Cent., 38 <i>l.</i>

MINES.—A considerable amount of business has been transacted during the week, and the demand for shares in leading mines has continued in full activity. The supply in dividend mines has not been equal to the demand, while a great many shares of secondary mines have changed hands.

The copper market remains the same as last week; the standard has, however, not been raised. Some of the makers are full of orders for manufactured copper for two or three months to come. British tin has been in better request since the fall in price, and East India tin has realised better prices; Banca has been sold at 80*l.*, and Straits at 78*l.* per ton.

Several shares in Devon Great Consols have been sold during the week, and inquiries are still being made.

There are buyers for Botallack, Wheal Bassett, Wellington, Tremayne, and South Tolgus; but the advanced rates asked are not readily met. A large number of Alfred Consols and Wellington have changed hands during the week.

The bi-monthly report from Mary Ann this week is of a highly gratifying character, the mine generally having much improved. Two parcels of silver-lead ores were sold on Monday, the 7th inst.—No. 1 at 19*l.* 15s. 6d. per ton, and No. 2 at 9*l.* 16s., by which upwards of 2500*l.* will be realised. Bedford United is stated to be looking remarkably well. In the eastern end, in the 103, the lode is yielding from 6 to 7 tons per fm. In a winze sinking under the 90, it is worth from 4 to 5 tons per fm. The lode in the back of the 103 is also much improved.

At Great Sheba Consols we learn that the discoveries made are of the highest importance. The surface operations, as well as the underground, are progressing in the most satisfactory and encouraging manner.

At Wheal Adams, the cross-cut in the 70 is closely approaching the lode, when, no doubt, a fine course of lead may be expected from the rich bunch gone down in the 60. At Wheal Exmouth the same lode is now worth 100*l.* per fathom.

Wheal Russell is progressing as favourably as was stated last week. On Tuesday, 47 tons 7 cwt. 2 lbs. (21 cwt.) copper ores were sampled and weighed, being above the estimate previously given.

From North Wheal Friendship were sold, on the 7th inst., to Messrs. R. Michell and Sons, 21 tons (21 cwt.), at 10*l.* 14s. per ton.

Wheal Seton, we learn, is looking very well, although the dividend on Monday next will probably not be more than 5*l.* for the two months; in all likelihood, however, the next account will leave a larger balance in hand, as 1100 tons were sampled for August and September, which sales will go to the discharge of Oct. and Nov. costs. There is every reason to calculate on a much longer run of ore ground in the 100 fathom level than was met with in the 60. In Cock's ground they have a large and kindly lode, towards which they are driving a cross-cut in the 64, and sinking a shaft from surface. These operations are attended with heavy expenses, and tend to curtail the dividends.

From Alfred Consols we learn that in the winze sinking under the 70 a great improvement has taken place; the lode is worth 100*l.* per fathom. The 70 east is worth from 100*l.* to 110*l.* per fm., and the lode in the 60, east of Field's shaft, from 40*l.* to 50*l.* per fm.

From the Welsh mines, we learn that at Lisburne the produce for September is estimated at 460 tons, and for October about 437 tons will be sampled. At Nanteos the 15, 20, and 30 fm. levels, with the stopes, are yielding, on an average, about 12*l.* cwt. of ore to the fathom, and 65 tons were sampled on the 7th inst. At Daren there is a fine course of ore in the new adit, yielding a large amount of lead and copper ore. The rails are being laid, and the crusher works well. The stopes in the level Canal are now all right, having fixed good timber throughout. A new pass is making from level Canal to level Coed. The ore in Francis's level is about 3 ft. wide. At Llwynmales, the 8 and 10 fm. levels, and the stopes over the 8, are in fine branches of ore. In cutting down the north side of London shaft, an excellent branch of ore has been found.

Shares in the following mines have changed hands during the week:—Devon Great Consols, South Tolgus, Botallack, South Bassett, Tincroft, Tremayne, West Providence, Trehan, Bedford United, Nant-y-Car, Treawny, Bridford, Alfred Consols, Mary Ann, Great Sheba Consols, Warleggan, Crebor, Henneock, Dolcoath, South Plain Wood, Wheal Russell, Venton, Stray Park, Butterdon, West Stray Park, Wellington, Fortescue, West Francis, West Tolgus, East Buller, Daren, Tregordon, Tamar Consols, Holmbush, West Wheal Jewel, Trefusis, Mill Pool, &c.

At the Tamar meeting, it appeared that the directors had been unable to reserve their produce for a good market, for want of available funds, which precluded their competing with other smelters. A loss had occurred in the smelting department from several causes, among which are the great competition in purchasing ores, the drop in the price of lead, and the high price given for the Tamar ores. The receipts were stated to be 21,844*l.* 3s., and the expenditure 18,345*l.* 14s.; leaving a balance of 2838*l.* 9s. The reserved sum amounted to 2299*l.* 13s., and a further call of 1*l.* per share on 9600 shares shows that additional capital is required.

At the East Tamar Consols meeting, the accounts showed a balance in favour of mine, 453*l.* 8s. 1d. Previous to the next meeting, in December, there would be a balance against the mine, consequently a call of 2s. per share was deemed necessary, and accordingly made.

The two-monthly meeting of South Tamar was held the same day. The balance-sheet showed a balance of 1003*l.* 7s. in favour of the mine. Before the next two-monthly meeting, the balance of payments over receipts was stated to be 375*l.* 3s.; whilst the account of assets and liabilities shows a balance in favour of the company of 1424*l.* 17s.

At Tavy Consols account meeting for July and August, the accounts showed a balance against the mine of 347*l.* 7s. 3d., with liabilities, making together, 761*l.* 7s. 5d. A call of 10s. per share was, consequently, made. The agent's report appears, on the whole, satisfactory, and the prospects are deemed encouraging. The next sampling will be about 70 tons.

A meeting of the committee of shareholders of the Company of Copper Miners and the Bank directors took place in the Bank Parlour on Thursday, but no decisive arrangements were effected. The sureties for the mortgage are to meet this day, in order to take such steps as may be considered necessary, as the bills which they have given fall due in the ensuing week. The sureties are Messrs. Jones Lloyd, Denison, Glynn, &c.

At Wheal Trefusis meeting, the accounts for July and August showed a balance of 420*l.* 11s. 2d. against the mine, and a call of 1*l.* per share was made. The operations are being carried on with spirit, though as yet they are only preparatory to more vigorous measures for the full development of the mine, in which operations are now resumed, after a suspension of 24 years.

At Grambler and St. Aubyn meeting, the accounts for six months ending Aug. showed a balance of 11*l.* 0s. 10d. in hand; but to carry on the operations with effect, it was deemed necessary to make a call of 2*l.* per share.

At the Dyffrynwm meeting, owing to the agent not having transmitted the accounts, but little business was transacted. The meeting was but thinly attended, and complaints were made, that while the duties of the captain were diminished his salary had been increased.

At the Rhoswydol meeting, the purser entered into an explanation as to the outlay upon the mine, which had been represented to be 28,000*l.* to 30,000*l.*; he said it was only for him to refer to the books of the company, whereby it would be seen that not more than one-fourth part of such amount had been expended. In the first place, the mine was divided into 2500 shares; of these, 2000 shares were taken up by the parties as free shares, to a certain point, representing 20,000*l.*, and the remaining 500 shares paid their calls, as we understood, up to 10*l.* per share, or 5000*l.*, and subsequently the others had paid their proportion of the further calls, the purchase money for the mine being, in fact, 25,000*l.* A call of 1s. 6d. per share was made.

At Hawk's Point Mine meeting, a call of 25s. per share was made, which is calculated to put down engine-shaft 10 fms., and also to drive east and west on main lode 10 fms. Capt. Higgins has a good opinion of the mine: the engine-shaft is sunk 26 fms. below surface, about 13 fms. under adit; driving east and west on lode, turning out 3 tons to a fathom. There are about 16 tons of good ore at surface, and expect soon to increase to 60 tons.

At Great Calstock Moors meeting, the accounts were finally closed by a dividend of balance in favour of adventurers of 100*l.* 5s. 3d., being at the rate of 9s. 7d. per share.

In Foreign Mines, transactions have taken place in the following shares:—United Mexican, St. John del Rey, Cobro, Santiago, and Copiapo. The late advices from the Imperial Brazilian mines have caused a demand.

From the Linares report up to the 28th Sept., it appears that the lode in the 31, east of Shaw's shaft, is more favourable, and that in the San Antonio mine some good lead has been broken. The tribute pitches and other parts of the mine are just the same as last reported. The amount of ore weighed in during the week is 24 tons 3 cwt., making 82 tons 1 cwt. at the mine; whilst at Seville and Malaga, waiting for shipment, there are 242 tons 14 cwt., making a total of 390 tons 16 cwt.; on the passage to England, 60 tons 18 cwt.

The St. John del Rey letters are to the 8th of August, giving the returns for July, the profit for the month being 2489l. 1s. 1d.; the produce being (duty deducted) 20,157 ota; value, 7728l. 17s. 9d., and the cost, 5239l. 15s. 11d. The supply of ore was abundant, but the quality inferior; it is now represented as better, and an improvement for the current month (Aug.) was anticipated. The cost-sheet for the month is more than ordinary, owing to a charge of 673l. 15s. for necessary materials being included. A remittance of 394 lbs. of gold has been received, the value of which is about 18,380l. sterling.

The Imperial Brazilian advices are to the 23d July, and other letters have since been received to the 18th August. The gold returns from 13th July to 12th August from Gongo Soco and Bananal are stated at 25 lbs. 1 oz. 1 dwt. Advices of the 3d and 18th August from Bananal are more satisfactory. The 24 fn. level has intersected and passed the auriferous shoot in the Big Pump vein, from whence some works resulted, which have yielded 8 lbs. 1 oz. 2 dwt., and the prospects look considerably more cheerful, some particulars of which will be found in another column.

The National Brazilian letters are to the 24th July. The prospects of the company, which have been gloomy for some months past, are becoming more cheering, and there is every probability of their recovering their former position. The produce from Cocoes for 10 days, ending 24th July, is mks. 5 5 4. At Calaba the ground is getting softer, which will lessen the expense of the working. Letters to the 14th of August from Cocoes, and 5th of August from Calaba, have since been received, but they indicate no particular improvement. The produce of Cocoes from the 5th to the 18th August was stated to be—mks. 5 6 0 45; of Calaba, from 27th July to 6th August, mks. 2 6 1 52.

The United Mexican Association has received intelligence to the 30th Aug. from which we learn that at Rayas Mine the quantity has fallen off, whilst the quality has improved. The amount of returns over expenses will be nearly the same as during the preceding month, being about \$31,000. At Aldana the blue sulphuret of silver is found to have improved in quantity. The prospects of this mine are more encouraging than heretofore, but require time for development. At Jesus Maria a cross cut has been commenced from the shaft (which is down 102 yards), to cut the principal vein. Promontorio continues as last reported. A bill of exchange for 1500l. has been received.

Letters have been received by the Santiago Company to the 3d Sept., which state, that at Perseverancia the stopes between the 10m. level, 8 fms. below, east and west of Thompson's shaft, are yielding 8 tons per fathom. In the 10, east of the shaft, it is worth from 4 to 5 tons. In the stopes west of the shaft, and No. 2 winze, between the adit and 10m. level, the lode is yielding 24 tons per fm. At San Joaquin, the lode in the deep adit is large, but the north part is producing 1 ton per fm. At Recurso, the lode in the winze between the 14 and 20m. levels, east and west, is yielding 3 tons per fm. In the back of the 26m. level west the lode is worth 4 tons per fm. At San David, the lode is without alteration. At Angelita, they have commenced an adit at 84 per yard. The quantity of ore raised in August was 220 tons, lode stoped 21 fms., and the average produce per fathom 7 tons.

Despatches have been received by the Alten Mining Association up to the 17th Sept.; the estimated produce for August had been calculated at 149 tons, which would produce 912 tons fine copper. Improvements were expected at Raipas, and the prospects at Ryper's were of a cheering character. Mancur's had improved, but, on the whole, the tributaries were not making large returns.

The dates from the Worthing Mine are to the 10th June, and from Adelaide three days later. The water-wheel shaft was calculated to be worth 32l. per fm. The report from the agent, which will be seen in another column, was considered satisfactory.

LATEST CURRENT PRICES OF METALS.

LONDON, OCTOBER 11, 1850.

ENGLISH IRON. <i>s</i>		per ton.	£78 10 0	
Bar, bolt, & square, London	..	25 0 5	Old copper	.. per lb. 8d-9d
Nail rods	..	6 0 6	Yellow Metal Sheet	..
Hoops	..	7 0 7	FOREIGN COFFER. <i>f</i>	
Sheets (single)	..	7 12 6	Chili	—
Bars, at Cardiff & Newport	..	4 10 4	ENGLISH LEAD. <i>p</i>	
Refined metal, Wales*	..	3 5 3	Pig	.. per ton 16 10 17
Do. anthracite	..	3 10 0	Sheet	.. 17 15 18
Pigs in Wales	..	3 0 3	Pipe	.. 18 10 0
Do. do. forged	..	2 5 0	Red lead	.. 19 0 0
Do., No. 1, Clyde	.. net cash	2 3 0	White ditto	.. 25 0 0
Blewitt's Patent Refined Iron	..	3 10 0	Patent shot	.. 20 10 0
for bars, rails, &c., on	..		FOREIGN LEAD. <i>h</i>	
board at Newport*	..		Spanish, in bond	.. 16 0 0
Do. do. for tin-plates, boiler	..	4 10 0	ENGLISH TIN. <i>c</i>	
plates, &c., ditto.	..		Block	.. per cwt. 4 0 0
Stirling's Patent	.. in Glasgow	2 15 0	Bar	.. 4 1 0
Toughened Pigs in Wales	..	3 10 15	Refined	.. 4 6 0
Staffordshire bars, at the works	5	5 5 10	FOREIGN TIN &	
Rails	..	4 12 6	Banca, H. C.	.. 4 0 0
Chairs (Clyde)	..	4 0 0	Ditto, for Export only	..
FOREIGN IRON. <i>b</i>			Straits	.. 3 18 3
Swedish	..	11 7 6	TIN-PLATES. <i>l</i>	
CND	..	17 10 18	IC Coke	.. per box 1 7 6-1
PSI	..	15 0 0	IC Charcoal	.. 1 12 6-13
Gouffier	..	14 0 0	IX ditto	.. 1 19 0
Archangel	..	13 10 0	SPELTER. <i>m</i>	
FOREIGN STEEL. <i>c</i>			Plates, warehouse	.. per ton 16 15 17
Swedish keg	..	13 13 14	Ditto, to arrive	.. 16 15 0
Ditto Aggott	..	15 0 15	ZINC. <i>n</i>	
ENGLISH COFFER. <i>d</i>			English sheet	.. per ton 21 0 0
Sheets, sheathing, & bolts, p. lb.	..	0 0 9	QUICKSILVER	.. per lb. 3s. 9d.
Tough cake	.. per ton	79 10 0		

REMARKS.—A large business was done in Welsh bars some days since, at 4l. 10s.; we now quote the market steady at this price. Scotch pigs have been very quiet this week, and little or no business doing, at 42s. 9d. net money, and 43s. 6d., three months, open delivery. In lead, no alteration.—Several parcels of Banca tin have changed hands at 60s. cash, and 81s. with a prompt, price firm. A good business has been done in English tin, at the late reduction. Tin-plates rather easier.—An advance expected in copper, and for manufactured 3d. per lb. has been paid.—In spelter, there are only a few sellers, at 16l. 15s.

GLASGOW, Oct. 10.—The demand for pig-iron for the past week has been limited; buyers, for the most part, will not give the price demanded, and holders seem easy about selling, consequently the price is well maintained. The price is quoted at 43s., cash, for mixed Nos., free-on-board here.

LIVERPOOL, Oct. 11.—The copper meeting last Tuesday passed over without any alteration in price being declared. Differences of opinion at the board, it is understood, have arisen, which, with other considerations, appear to have rendered it needful to leave the question for the present in abeyance; this state of things is to be regretted, being so obviously contradictory of the present state of the trade. With quotations at 9d. per lb., there are no sellers under 9d., and we believe no difficulty is experienced in making sales at the latter rate. On market is thus in an anomalous position, and it is, on every account, to be desired that the quotations should represent, and be a true index of, the actual sales. Iron continues dull at 44l. to 52l. per ton, six months, or 2½ per cent. cash.

THE IRON TRADE.

The quarterly meeting of the iron trade was held on the 9th inst. at Wolverhampton, and on the following day, at Birmingham. At Walsall, notwithstanding the depression which has taken place, the quarterly accounts were deemed more satisfactory than could have been anticipated. The imposition of a more restricted tariff, with heavier duties on British iron (which we have remarked elsewhere), by the Spaniards, was viewed with great alarm by the ironmasters; and it was thought that the trade of South Staffordshire would be almost excluded from that country. Although the exports of machinery and metals from Great Britain had considerably decreased in the last two months, the general exports of iron for the last year have been in excess of any former year. The prices of iron in South Staffordshire and Shropshire are somewhat lower than last quarter, subject to peculiar circumstances of purchase. Tin plates are in great request. It was the unanimous opinion of all parties that the causes which have led to the present untoward condition of the entire trade, is mainly to be attributed to excess of production, and absence of railway demand. The reduction of a third of the make, suggested by the Welsh masters, and communicated by Mr. Thorneycroft (vide *Mining Journal*, Sept. 28th), was generally approved. If this were not adopted, it was apprehended a reduction of wages would be the inevitable consequence, which would be a fearful expedient on the eve of winter. At the Birmingham meeting, there was little to remark beyond that at Wolverhampton, although the general distress and depression which they acknowledged was more than fully confirmed. Pig-iron was being sold by the smaller maker at almost any price; and iron, which some years ago fetched about 10l. per ton, was now being offered at the rate of 2l. 12s. 6d. All were here, as well as at Wolverhampton, of the opinion that over production had done all the mischief; and that if the make was not greatly reduced, there would be no hope of the trade returning to a healthy state. Three years ago, the ironmasters fitted themselves out in the production of enormous quantities of iron, as though the demand was going to last for ever. The final meeting takes place at Dudley this evening; but, from the present position of affairs, nothing more satisfactory is likely to be the result.

EXPORTS OF METALS TO ALL INDIA FROM LONDON AND LIVERPOOL.

FOR THE FIRST NINE MONTHS OF 1849 AND 1850.

Metals.	1849.	1850.	In. in 1850.	Dec. in 1850.
Spelter	2910	3794	—	416
Copper	4684	4620	—	64
Iron, British	25844	40604	—	14760
Ditto, Foreign	1670	1069	—	601
Tin-plates	11968	15080	—	3412
Lead	2365	—	—	433
Steel	756	892	—	137
Quicksilver	247	82	—	195

EXHIBITION OF 1851.—T. P. AUSTIN, proprietor of PEELE'S COFFEE-HOUSE, FLEET-STREET, begs respectfully to inform his friends and the public generally, especially those interested in the forthcoming GREAT EXHIBITION, that he has recently HEAVILY DOUBLED THE SIZE OF HIS ESTABLISHMENT, which will enable him to afford increased comfort and convenience to those honouring him with their patronage. THE FILES OF NEWSPAPERS and PERIODICALS, for which Peelle's Coffee-house is so celebrated, containing all the reports of the Royal Commissioners, will be available to those visiting this establishment. * * * The *Mining Journal*, in addition to all Publications connected with the Mining interests, are regularly filed. Bed and Breakfast, 3s., or 2l. per week.

KUPER & CO.'S PATENT IMPROVED WIRE ROPES.

MANUFACTORY—GRAND SURREY CANAL, CAMBERWELL, LONDON.

SOLE AGENTS.

FRANCIS AND H. J. MORTON.
10, NORTH JOHN-STREET, LIVERPOOL, and 91, ALBION-STREET, LEEDS.

The great SUPERIORITY and ECONOMY of WIRE ROPES for MINES and RAILWAYS, over Hemp Ropes or Chains, has been fully established by extensive use in all the principal mining districts in the United Kingdom for many years—being cheaper, much lighter, more durable, and a great saving to the engine.

KUPER & CO. request particular attention to their IMPROVED FLAT ROPES, and their very superior mode of stitching; also to their ROUND ROPES, for Inclines, &c., and PIT GUIDES or CONDUCTORS made of very thick wire, and in one length, without joints.

Prices, carriage free to the nearest railway or water station, 56s. per cwt. for round 70s. per cwt. for flat ropes; galvanizing, 10s. per cwt. extra.

SIGNAL CORD, galvanised or varnished, of all sizes, for Mines, Railways, &c., from 14s. per 100 yards.

GALVANISED SIGNAL PULLEYS, with brass wheels, 6s. per dozen.

GALVANISED and CORRUGATED IRON ROOFING, GUTTERING, SPOUTING.

WATER and GAS PIPES, of all kinds, FIXED and SUPPLIED.

GALVANISED GAS, WATER, and STEAM PIPES, of great strength.

FAIRBANKS' PATENT WEIGHING MACHINES, of all sizes, at very low prices.

ASPHALTED ROOFING FELT, 1d. per square foot.

DRY HAIR BOILER FELTS, of all thicknesses.

PATENT WIRE STRAND FENCING and ORNAMENTAL WIRE WORK, for Railways, Parks, and Agricultural Fencing.—F. & H. J. Morton have fixed upwards of 500 miles of this fencing in the last few years.—Price from 1s. 6d. per yard, fixed, complete.

STOCKS constantly kept in LIVERPOOL, LEEDS, and LONDON.

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PATENT GALVANISED IRON AND SPOUTING WORKS.

10, NORTH JOHN-STREET, LIVERPOOL, and 91, ALBION-STREET, LEEDS.

LEAD ORES.

Ticketing at the White Horse Hotel, Holywell, October 10.

Mines.	Tons.	Price per Ton.	Purchasers.
Masseywadda	69	£10 12 6	Newton, Keates, and Co.
Codda Llys	31	12 6	J. P. Eytton
Hendre	48	10 10	Mather and Co.
Ditto	14	10 15	Walker, Parker, and Co.
Ditto	24	11 6	Ditto
Deep Level	100	10 15	Mather and Co.
Fron Fawng	23	14 10	Newton, Keates, and Co.
Talacre	40	12 1	Walker, Parker, and Co.
Lioe	50	12 1	Ditto
Stronim	40	11 7	Ditto
Cairnmore	40	10 5	Mather and Co.
Sold on the Mine.	Tons.	Price per Ton.	Purchasers.
East Wheel Rose	31	£11 6	R. Michell and Son.
Ditto	8	9 15	Ditto
Ditto	22	13 10	Sims and Co.
Ditto	6	7 10	Ditto
Ditto	7	12 10	R. Michell and Son.
Ditto	6	13 1	Sims and Co.

BLACK TIN

Mines.	Tons c. q. lb.	Price per ton.	Purchasers.
Mineral Court	5 1 16	£25 0 0	Calenick Company.
Ditto	0 5 16	25 0 0	Ditto
Ditto	0 4 0 24	53 12 6	Ditto
Ditto	0 1 2 6	29 12 6	Ditto
Ditto	0 3 1 7	51 0 0	Ditto
Ditto	0 1 2 1	45 0 0	Ditto

COPPER ORES

Sampled Sept. 25, and Sold at Andrew's Hotel, Redruth, October 10.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Carn Bros.	32	£5 13 6	Alfred Consols	74	£5 9 6
ditto	83	9 2 6	ditto	98	5 19 6
ditto	78	4 10 6	ditto	60	4 19 6
ditto	74	6 19 6	ditto	23	11 9 0
ditto	70	7 5 6	Wellington Mines	86	6 12 6
ditto	69	5 18 0	ditto	78	5 17 6
ditto	66	4 7 6	ditto	48	4 19 0
ditto	50	4 13 0	ditto	8	15 5 6
ditto	46	2 10 6	Levant	112	2 9 0
ditto	29	13 5 0	ditto	60	3 17 6
Tywarahayle	124	3 7 6	ditto	34	8 4 0
ditto	116	3 5 6	West Wheel Soton	44	4 2 6
ditto	95	3 19 6	ditto	27	3 14 6
ditto	75	3 3 6	West Wh. Treasury	49	4 12 6
ditto	70	3 11 0	ditto	43	7 2 6
ditto	42	3 11 0	Wheel Agar	44	3 17 6
ditto	26	2 13 0	St. Aub. & Grylls	18	3 9 0
Nancekuke	34	4 5 6	ditto	15	7 5 6
Par Consols	86	7 10 0	South Wh. Fortune	20	4 6 0
ditto	82	6 13 0	Wh. Friendship	8	3 19 6
ditto	66	5 16 6	ditto	9	2 8 0
ditto	51	10 12 6	Wh. Union	8	6 16 0
Wheel Buller	85	4 13 0	East Wh. Treasury	8	3 3 0
ditto	70	9 9 0	Godolphin	3	0 10 0
ditto	61	10 4 6	ditto	3	0 10 0
ditto	57	8 1 6			

TOTAL PRODUCE.

Mines Royal.	Tons.	Amount.
Tywarahayle	332	£4061 11 6
Nancekuke	34	2363 15 0
Par Consols	285	2116 12 6
Wh. Buller	273	1941 7 6
Alfred Consols	223	1384 16 0
Wellington Mines	220	1387 16 0
Levant	206	785 14 0
West Wh. Soton	111	447 1 6
West Wh. Treasury	92	£533 0 0
Wh. Agar	44	170 10 0
St. Aub. & Grylls	33	171 4 6
South Wh. Fortune	20	86 0 0
Wh. Friendship	17	54 19 6
Wh. Union	8	54 8 0
East Wh. Treasury	8	23 4 0
Godolphin	7	20 14 0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Mines Royal.	Tons.	Amount.
Mines Royal	234	£1481 16 2
Vivian and Sons	526	3265 9 8
Freeman and Co.	264	1419 11 6
Greenell and Sons	497	2256 3 6
Sims, Williams, and Co.	271	1353 12 6
Willmer, Foster, and Co.	729	4362 2 6
Schneider and Co.	267	1266 19 6
Total tons	2788	£15,604 14 0

Average Standard £9 12 0 | Average Produce 5½
Average Price per ton £5 11 6
Quantity of Ore 2788 tons | Quantity of Fine Copper, 233 tons 12 cwt.

Amount of money, £15,604 14 0
LAST SALE.—Average Standard £105 8 0.—Average Produce 7½
Standard of corresponding sale last month, 100l. 11s.—Produce, 8½

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcells.—Devon Great Consols, Wheal Josiah, Wheal Maria, Wheal Fanny, and Wheal Anna Maria 1517—West Caradon 297—Marks Valley 283—Fowey Consols 250—Wheal Friend 210—Holmhead 160—Phoenix Mines 131—Bedford United Mines 119—Wheal Pink 22.—Total quantity of ore to be sold, 3009 tons.

Copper ores for sale on Thursday week, at Lenderyon's Hotel, Truro.—Mines and Parcells.—United Mines 789—Tresavean 360—Par Consols 269—South Caradon 257—Wheal Comfort 170—South Tolgus 141—Trellech Consols 125—Wheal Mary 93—West Wheel Jewel 59—East Wheel Rose 40—West Trellech 22.—Total, 3325 tons.

QUARTERLY SALE OF COPPER ORES IN CORNWALL.—SEPT. 30.
Copper ores, 38,394 tons (21 cwt.)—Fine copper, 3104 tons 12 cwt. 2 qrs. 11 lbs.—Amount of money, 204,191l. 9s. 6d.—Average produce, 8 1-16th.—Average standard, 99l. 15s.—Average price per ton, 5l. 6s. 6d.

MINING APPOINTMENTS DURING OCTOBER.
12. Par Consols and East Crofty pay; West Treasury pay and setting.
14. Fowey Consols sampling.
15. East Pool and Fowey Consols account on the mine.
16. North Roskear, North Pool, and Soton sampling; Wheal Mary account at Redruth.
17. Ticketing at Redruth—Devon Consols, and other mines.
18. Budnick pay; Levant twoturn pay.
19. Pay day at Fowey Consols, Great Consols, United, West Buller, Comfort, Tre-vankey, Agar, and Penderves. Setting day at Levant Mine.
21. Par Consols sampling; Condurrow account on the mine.
23. Carn Bros. and other mines sampling.
24. Ticketing at Truro—United, Par, and other mines.
25. North Pool and Trellech Consols pay; East Crofty setting.
26. Pay day at Tresavean, Trellech, Granbler, North Roskear, Fowey Consols, Condurrow, South Frances, Tywarahayle, and West Soton; East Crofty subalt.
29. North Pool account on the mines.
30. No copper ore sampling this week.
31. Ticketing at Redruth—North Roskear, North Pool, Soton, &c.

THAMES TUNNEL COMPANY.

The number of passengers who passed through the Tunnel in the week ending Oct. 5, was—No. of passengers, 17,429.—Amount of money, 472 12s. 5d.

PRICES OF MINING SHARES.

* * * As it is exceedingly difficult to obtain a correct knowledge of all the mines in our list London, we trust the agents, and others interested, will assist us, by forwarding any corrections with which they may be acquainted—our object being to present as perfect a list as can be procured.

BRITISH MINES.

Shares.	Company	Paid.	Price.
1000	Aberwraim (silver-lead), South Wales	9	—
1024	Alfred Consols (copper), Hayle, Cornwall	8½	62½ 65
124	Ally-Crib (silver-lead), Tal-y-bont, Cardiganshire	9	5 8½
1624	Alston (tin), St. Austle, Cornwall	10	—
128	Balloon Consols (tin), Uny Llanell, Cornwall	42½	20
905	Barriarstown (lead), Carrick, Ireland	8½	—
3650	Bawden (silver-lead), Cornwall	1	—
4000	Bedford United (copper), Tavistock, Devon	10½	4 8½
1280	Birch Tor and Vitiier (tin), Dartmoor, Devon	10½	5
1500	Bishopstone (silver-lead), South Wales	1½	10
3000	Black Crag (lead), Kirkcubrightshire	5	5
8000	Blackmoor (iron), South Wales	5	12½
1024	Bodmin Consols (tin), Wadebridge, Cornwall	3	—
5000	Bodmin Moor Consols (tin and copper), Bodmin, Cornwall	1	—
60	Bosorn (tin), St. Just, Cornwall	3½	10 12½
1000	Botallack (tin and copper), St. Just, Cornwall	182	240 250
1500	Brifdow Wheel Augusta (lead), Bridford, Devon	—	—
10000	British Iron, New, regis. (iron), South Wales	12	8
—	Ditto ditto, scrip	10	10
2400	Bryn-Arlyn (lead), Cardiganshire	3	10
107	Budnick Consols (tin), Carnarvonshire, Cornwall	52½	10 1½
406	Butterdon (lead), Menhenloot, Cornwall	1½	5 5½
2000	Bwlch Consols (silver-lead), Cardiganshire	—	48
1000	Callington (lead and copper), Callington, Cornwall	26	68
1000	Camborne Consols (copper), Camborne, Cornwall	7	7 8
20000	Cameron's Steam Coal (coal), Swansea, Wales	7	—
1168	Caradon Great Cons. Mines (copper), Linkinhorne, Corn.	7	3
250	Caradon United (tin and copper), St. Cleer, Cornwall	24	5 8
1536	Cardigan (copper and lead), St. Ive, Cornwall	1½	11 1½
1000	Carbena (tin and copper), St. Austle, Cornwall	5	—
1000	Carn Brea (copper and tin), Hlogan, Cornwall	15	117½ 125
3000	Carthew Consols (cop. & lead), near Wadebridge, Cornwall	3½	7
132	Carvannall (copper), Gwennap, Cornwall	21½	60 80
309	Cefn Bruno (lead), Cardiganshire	4	9
113	Charlestown (tin and copper), St. Austle, Cornwall	220	—
500	Clawdown (lead), Callington, Cornwall	5½	48
250	Cliff Top (copper), Gwennap, Cornwall	45	110
236	Conduff Consols (copper and tin), Hlogan, Cornwall	2	110 20
2560	Corn's Kitecins (copper and tin), Hlogan, Cornwall	14	7 ½
1000	Coombe Valley Quarry (slate), St. Ginnis, Cornwall	5	2
1000	Copier Batton (copper), Crownan, Cornwall	5	7
900	Court Moor (silver-lead), Cardiganshire	10	10
211	Craddock Grange (copper), St. Cleer, Cornwall	27	8
356	Crane and Bejawsa (copper), Camborne	2	10
1000	Crwn Erll (lead), Cardiganshire	4	34 3½
1000	Croya (copper), Cardiganshire	2	—
1000	Daren (silver-lead), St. Austle, Cornwall	2	8 8½
7100	Derwent (silver-lead), Durham	10	3
1049	Devon and Courtenay Consols (copper), near Tavistock	11½	1½
1024	Devon Great Consols (copper), near Tavistock	1	225 227½
1000	Dilurode (copper), Ireland	2	5
182	Dolcoath (copper and tin), Camborne	30	20
2560	Drake Walls (tin and copper), Calstock, Cornwall	6½	2½ 3
1000	Durham County Coal (coal), Durstow, Cornwall	45	9
3000	Durham (lead), North Wales	10	10
1024	East Balwidens (tin), Saccar, Cornwall	½	—
2500	East Birch Tor (tin), North Bovey, near Ashburton	3	3
1024	East Buller (copper), near Redruth, Cornwall	2	5½ 6
128	East Carn Brea (copper), Redruth, Cornwall	1	3
2048	East Crowndale (tin), Tavistock	7½	1½
150	East Daren (lead), Cardiganshire	11	21½ 24
256	East Godolphin (copper), Crownan, Cornwall	13½	13
1000	East Gannis Lake Junction (copper), Gannis Lake	—	2 8
4000	East Pool (copper), Pool, Cornwall	15	80
2500	East Seton and Wheel Maude, near Redruth, Cornwall	—	—
9000	East Tamar Consols (silver-lead), Beer Ferris, Devon	1½	11½ 1½
1000	East Telgus (copper), Redruth, Cornwall	1½	8
256	East Trescol (tin), Lanivet, near Bodmin, Cornwall	1	1½
128	East Tywarshale (copper), St. Agnes, Cornwall	1	9½
94	East Wheel Crofty (copper), Hlogan, Cornwall	125	110 120
512	East Wheel Leisure	3	—
112	East Wheel Rose (silver-lead), Newlyn, Cornwall	50	500 525
1280	East Wheel Llanell (copper), Llanell, Cornwall	3	3½
248	Exmoor Wheel Eliza (copper), South Molton, Devon	11	10
494	Fowey Consols (copper), Tywardreath, Cornwall	40	30
1024	Freidd Llywyd Mines (lead), Wales	1½	2½
256	Garras (lead), near Truro	41	23
4000	General Mining Company for Ireland (copper), Ireland	1½	4
100	Goginan (lead), Cardiganshire	5	200
256	Gonansna (copper), St. Cleer, Cornwall	44½	16
2500	Graig Consols (tin), St. Cleer, Cornwall	2	3
256	Grahamer and Goginan (copper), near Redruth, Cornwall	2	28 30
96	Great Consols (copper), Gwennap, Cornwall	1000	250
512	Great Wheel Badden (tin and silver-lead), Koa, Cornwall	20	100
3072	Great Wheel Mitchell Consolidated, Lanivet	—	5
512	Gr. Wh. Rough Tor Consols (copper), near Camelford	29	20
6000	Groswa Slote Company, Camelford, Cornwall	5	5
1026	Gustavia Mines (copper), Camborne	3	2½ 3
512	Hawke's Point (copper), Uny Llanell, Cornwall	5	—
1000	Hawke's Point (copper), Gwennap, Cornwall	2	—
5000	Helginston Down Consols (copper), Calstock, Cornwall	8½	3 3½
1500	Hennock (silver-lead), Hennock, near Exeter, Devon	26½	2½ 3
512	Hierloof (lead), near Liskeard	16	13½ 14
10000	Hibernian (copper), Ireland	12½	1½
1000	Himbush (lead and copper), Callington	23	20 25
1000	Keswick (lead), Portincale, near Keswick	10	2 3
1024	Kingest & Bedford (lead & copper), St. Mary Tavy, Devon	3½	8
987	Kirkcubrightshire (lead), Kirkcubrightshire, Scotland	8½	5½ 5½
2048	Lanherne Wheel Maria (copper), near Lamerston	10	4
212	Lanarth Consols (copper), Gwennap, Cornwall	10	9
256	Lelant Consols (tin), Uny Llanell, Cornwall	53	25
160	Levant (copper and tin), St. Just, Cornwall	—	175
100	Lewis (tin and copper), St. Erth, Cornwall	17	18 20
100	Lisbarne (lead), Cardiganshire	75	60 80
1000	Llynnmales (lead), Cardiganshire	9½	9 10
3600	Llynnl Iron (iron), North Wales	50	50
5000	Llan Vock (copper), Cardon, Cornwall	10	1
1000	Mendip Hills (lead), near Bristol	3½	11½
128	Metha (lead) Newlyn, Cornwall	—	—
256	Mill Pool (tin and copper), St. Hilary and Gernoe, Corn.	13	8½
256	Mineral Court (tin), St. Stephens, near St. Austle	13½	30 35
20000	Mining Co. of Ireland (copper & c.), Waterford, Ireland	7	5½
1024	Moditham & Marrabro (cop. & lead), Botes-fleming	1½	2½ 3
1000	Montgomery (lead and copper), Montgomeryshire	6	11½ 12
200	Nantes (lead), Cardiganshire	34	—
1000	New East Crowndale (copper and tin), Breconshire	2	5½
1024	New East Crowndale (copper and tin), Breconshire	2	—
5000	North Wheel Basse (copper and tin), Hlogan, Cornwall	—	15 20
1024	North Buller (copper), Redruth, Cornwall	2	—
2000	North Levant (tin and copper), St. Just, Cornwall	—	3
140	North Roskear (copper), Camborne, Cornwall	5½	400 425
256	North Tols (copper), Redruth, Cornwall	2½	2½
512	North Wheel Llanell (copper), Redruth, Cornwall	1½	1½
256	North Wheel Tor (tin), Breage, near Histon, Cornwall	—	60
128	Par Consols (copper), St. Blazey, Cornwall	55½	60
1026	Pendarves Consols (copper), Camborne, Cornwall	6	—
1000	Pendarves and St. Aubyn (copper), Camborne, Cornwall	4	5½ 6
434	Pennant and Craigwen (lead), Wales	3	5½
2048	Pentire Glaze, United (silver-lead), St. Mervin, Cornwall	4½	5
1000	Penybank and Erelcyd (lead), Cardiganshire	4	6
1160	Perran St. George (copper and tin), Perranzabuloe	21½	8 10
1024	Perranzabuloe (copper), Sennen, Cornwall	21½	8 10
1000	Perry Tavy and Mary Tavy (copper), Tavistock, Devon	24	5½ 6½
512	Plymouth Wheel Yenland (tin), Plymouth, Devonshire	6½	6
1000	Ditto Preferential	15	—
1000	Poiberron (tin), St. Agnes, Cornwall	—	—
112	Providence Mines (tin), Uny Llanell, Cornwall	—	150
2500	Rhosvdyol and Bachelddon (lead), North Wales	10	10
10000	Rhymney Iron (iron), Rhymney, South Wales	50	12
10000	Ditto New	7	3
1000	Roch & Co. (copper), near St. Austle	1	1
5000	Rocks Mine (tin), Roche, near St. Austle	5	6 7
2048	Runnaford Coombe (tin), Devon	21	5½ 8
1000	Snowdon (copper), Carnarvonshire, Wales	3	8
1024	South Balwidens (tin), St. Just, Cornwall	—	—
128	South Caradon (copper), St. Cleer, Cornwall	5	260
2000	South Carn Brea (copper), Hlogan, Cornwall	10	10 12
1100	South Dolcoath (copper), Hlogan, Cornwall	6	3 4
2000	South Friendship Wheel Ann (copper & tin), Devonshire	30	28 30
256	South Tols (copper), Redruth, Cornwall	12½	12½
1024	South Plain Wood (copper), Ashburton, Devon	2½	6 7
300	South Speed (copper and tin), Uny Llanell, Cornwall	15	30
9000	South Tamar (silver-lead), Beer Ferris, Devon	1	2½ 5
256	South Tols (copper), Redruth, Cornwall	16	160 165
256	South Trelawny (lead), near Liskeard, Cornwall	28½	8 8
2000	South Wales Mining Company (lead), South Wales	1	1
256	South Wheel Basse (copper), Hlogan, Cornwall	10½	300
124	South Wheel Frances (copper), Hlogan, Cornwall	160	550
256	South Wheel Llanell (copper), Calstock, Cornwall	3	3½ 4
10000	Southern and Western, Irish (copper), Co. Ireland	2½	4
280	Spearne Moor (copper), St. Just, Cornwall	30	40
128	Spearne Consols (tin), St. Just, Cornwall	10	100
256	St. Aubyn and Grylls (copper and tin), Breage, Corn.	2½	11 12 13
94	St. Ives Consols (tin), St. Ives, Cornwall	—	80
128	St. Michael Peakvel (cop. & tin), Chacewater, Cornwall	5	10½
999	St. Minver Consols (silver-lead), Cornwall	1	6
1000	Stray Far (copper), Camborne, Cornwall	10½	22 23 25
9600	Stray Far (copper), Camborne, Cornwall	8	11 12
687	Tay Consols (copper), near Tavistock, Devon	3	3½ 8
6000	Tincroft (copper and tin), near Pool, Cornwall	7	12½ 13
128	Tokenbury (copper), St. Ive, near Liskeard	7½	8

NOTICES TO CORRESPONDENTS

"We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

"A. B. G." (Cheltenham).—A meeting of shareholders in the Asturian Mining Company was held on the 10th September; our reporter, as well as the other members of the public press, was rightly excluded. The resolutions passed at the meeting were furnished to the different journals by Mr. Mackenzie, the secretary; we cannot avouch for their accuracy, but we believe that gentlemen would not have given them unless they had been correct. We are sorry that the subject in discussion were such, that they would not bear the scrutiny of the public press.

"An Inquirer" (Redruth).—An easy method to calculate the power of a water-wheel would be to add its diameter and width together, and then square the same. Multiply the contents by gallons of water contained in one bucket, which will give the number of lbs. weight the wheel is capable of lifting, allowing one-eighth for friction, thus: Suppose a wheel 40 ft. diameter, with 4 ft. breast, the buckets 42 inches in width, 13 in. deep, and 6 in. across—width and diameter 44 feet, which squared gives a result 1936, which again multiplied by 114 gallons, being the contents of one bucket, makes a total of 221,48 lbs. weight, from which deducting one-eighth for friction, leaves 200,780 lbs., or 10 tons 7 cwt. 5 gr. 24 lb. Assuming the bucket, exclusive of water, at 42 inches, and depth of bucket 13 inches, with 6 inches width, the result would be 3976, which divided by 377.3, being the cubical or solid inches contained in a gallon, gives 11 gallons 3 quarts to each bucket, as above stated. The power of the wheel would thus be, according to the rule laid down for estimates of this nature by Boulton and Watt, 103.9-10th horse-power, or, in other words, 200 lbs. per horse, to draw over the pulley at the rate of 24 ft. per minute.

James Harris (Redruth).—Try the washing tables used in Germany, if the patent separators will not efficiently dress your ore.

"W. B." (Looe).—We neither recommend or disparage any mining adventure—your best course is to apply to a respectable broker, the addresses of several of whom are to be found in our columns.

H. J. (Dudley).—There is no comparison in the speed which has been obtained on the Great Western Railway with that of the narrow gauge—on the former, upwards of 76 miles have been fairly run in the hour, while on the latter the utmost speed has been somewhat over 60. An engine was built for working the Bromsgrove Lickey Incline, but 1000 tons have never been taken up it, without assistance—which, indeed, we consider quite impossible.

Mark Lewis (Derby).—But small quantities of potter's lead have been found in Spain nearly all are sulphurets.

W. N. (Edinburgh).—The earliest application of gas light on a large systematic scale was made at Manchester, where an apparatus for lighting the great cotton-mills of Messrs. Phillips and Lee was fitted up in the years 1804 and 1805, under the direction of Mr. Murdoch. A quantity of light nearly equal to 3000 candles was produced on this occasion.

E. J. C. (Broad-street).—The Quanaquan Mines are about eighty miles distant from the property possessed by the Alien Mining Association.

Z. (Ayr).—Horse-power is used on the Norfolk and Lynn Railway, and on the branch line from Ashchurch to Tewkesbury, on the Bristol and Birmingham Railway. Write to Mr. Clay, the manager of the Norfolk and Lynn Railway, who will give the required information.

James Halford (Manchester).—Apply to some of the mining companies which are connected with Australia.

J. Browne (Norwich).—We have never heard of the property which you mention; it must be some considerable lode, which has no doubt been got up to delude individuals, else why should it be so well known in the east, while those in the west know nothing of it?

T. B. L.—The affairs of the Company of Copper Miners in England are not yet arranged; probably they may be enabled to come to terms with the Bank of England. One of the independent shareholders, who has already been in dispute with the Governor and Court of Assistants is, we hear, likely to commence proceedings *de novo*.

B. (Looe).—Newcastle obtained the first charter on record to dig for coals; this was in 1239, and in 1281 the export was considerable. A cubic foot of coal, of average quality, weighs from 75 to 80 lbs.; and an acre, 2 feet thick, will yield 3000 tons, and 5 feet thick, 8000 tons.

A Miner (Helson).—The distance from Panama to San Francisco is about 5500 miles. The length of Panama where it is at present usually crossed, is about 70 miles in length—50 miles from Chagres to Cruces, and 20 miles from Cruces to Panama. The former distance is performed in boats in about 48 hours, the latter on the backs of mules in 10 hours. A boat from Chagres to Cruces costs about 10*l*., and a mule from Cruces to Panama costs about 2*l*. Mazatlan, Acapulco, and San Blas, are the principal ports touched at by the Californian and Panama steamers. The highest price for a passage to California from England, by way of the Isthmus, that is as saloon passenger in steamers, is rather over 120*l*. The lowest sum as fore cabin passenger, provided he has a companion to share the boat passage from Chagres to Cruces, is rather under 70*l*.

A Novice (Glasgow) should procure Budge's "Miners' Guide," Mitchell's "Manual of Practical Assaying," and our "Glossary of English and Foreign Mining and Smelting Terms."

W. R. (Lewes).—The Tavistock United Mines comprise the Tavistock Consols and the Wheal Anderson sets. They are divided into 1024 shares, at 10*l*. each.

he third paper, on the Geological and Mineral Features of certain Districts in North Wales, by St. Pierre Foley, C. and M.E., will appear in next Saturday's Journal.

We shall, next week, publish an elaborate paper, with engravings, on Improvements in Forging Iron, by Mr. James Nasmyth; also another on the Emery of Asia-Minor, and the Minerals Associated with it (Geologically), by M. J. L. Smith; and Mr. Musket on the Form of the Blast-Furnace.

Received—F. J. A. (Loughor). "A Reader" (Newbridge); "M." (Redruth); "A Durham Fitz-John"; R. Moore (Peter Tavy); and "Nauticus" (Cardiff).

FROM GREAT CONSOLS MINING COMPANY.—The able and interesting account of these valuable mines, by Mr. J. H. Nicholson, having been for some time out of print, and that gentlemen having kindly consented to revise it up to this time for re-publication, we intend to present it again to our readers NEXT SATURDAY.

* It is particularly requested that all communications may be addressed—

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To THE EDITOR,
Mining Journal Office,
26, FLEET-STREET, LONDON.
and Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, OCTOBER 12, 1850.

THE MORNING JOURNAL is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

When the comprehensive alterations took place in our tariff, it was expected by the sanguine upholders of free trade that, in a

short period, we should have other nations reciprocating and following in our wake. Unfortunately, with one or two trifling ex-

ceptions, it has been clearly proved how delusive were those anticipations, and upon what erroneous data they must have been based. A correspondent, in an able article, which appeared in our Journal of the 31st August, pointed out the disadvantages and heavy fiscal duties which British iron was subject to in the States forming the Zollverein of Germany, although we received yearly from those countries great quantities of cereal produce, which is now admitted here at a nominal duty. It has often been said, that if you wish to make a person your enemy, the best way is to confer an obligation on him; and this axiom holds good with nations as with individuals.

country in the world owes such a debt of gratitude to Great Britain as Spain; and in no country are we so disliked and envied as in the peninsula. When the iron hand of NAPOLEON had overthrown the idiot dynasty which misruled that kingdom, it was the armies of England who chased the invader across the Pyrenees. After the pacification of Europe, when money was required to recruit the exhausted resources of the State, it was British capital which supplied their wants, under guarantees which have never been kept, and Castilian faith which is now appropriately styled "Punic." Had it not have been for the services of the British legion, another dynasty would have been seated on the throne of the PHILLIPS; and the present reigning powers probably could have sought shelter on our hospitable shores. How have the Spaniards requited themselves to us?—By a most illiberal policy, and the levying of heavy duties on our produce, which almost amounts to a prohibition. We should have thought that the example of other nations, and their own experience, would have shown the Spaniards the folly and impracticability of their present high tariff, which can only be considered as a premium to smuggling—an incentive to crime—which daily demoralises the population without giving any benefit to the revenue. To those who have travelled in the peninsula, the fact is notorious, that there are organised bands of *contrabandistas*, who solely obtain their livelihood by following their nefarious calling. To repress this, a large force, technically called *carabineros*, from the weapon they employ, is attached to the custom-house; and sanguinary encounters between them and their opponents are of daily occurrence—the latter having the sympathy of the population with them, generally carry their point *vi et armis*. It has been reckoned that the number of smugglers in Spain can be calculated at about 20,000 individuals. The *employees* of the Customs nearly double that number. They are generally selected from the dependents of the Minister

0,000 individuals. The employees of the Customs nearly double that number. They are generally selected from the dependents of the Minister

Foreign gold, in bars.....	per oz.	£3 17 9	New dollars.....	per oz.	£3 4 10½
Portugal pieces.....		0 0 0	Silver in bars (standard)		0 3 0½

TREATMENT OF COPPER ORES.—No. II.

By J. J. MURKIN, Esq., F.C.S., author of a *Manual of Practical Assaying*, &c. &c.

The first paper on the treatment of copper ores in Wales was published by J. Vivian, Esq., in the *Annals of Philosophy* for 1823, since which time, until 1848, little or nothing was written descriptive of the process in question. In the last-named year, however, Le Play published a very complete and most elaborate work on this subject, from which, Mr. Vivian's paper, the author's experience, and other sources, the following account will be collated:—

The Welsh method of copper smelting is based upon the same principles as those followed, with but one or two exceptions, in all the metallurgical groups of Europe. This will be further illustrated when treating of the methods followed on the continent. All ores, whatever may be their nature, are treated in a fusion furnace, containing a sufficiency of sulphurets of copper and iron to concentrate the whole of the copper in a compound, chiefly consisting of sulphur, copper, and iron, which is technically termed "metal," which, on account of its fluidity and great specific gravity, separates readily under the influence of the high temperature at which it was produced, from the more pasty and always lighter slag, which contains nearly all the earthy and other fixed elements introduced—this slag is always rejected. The metal may be considered an enriched ore, nearly free from earthy matter, but it always contains lime, magnesia, baryta, &c., which, although present in small quantity, exercise a very considerable influence on the resulting metallic copper, from the fact that they are in chemical combination. This opinion differs from that of Le Play and others, who consider that no earthy matter is present. A careful analysis, however, always reveals the existence of one or more of the earths, existing most probably as a double sulphurets with the copper, or a triple sulphuret, with copper and iron. The metal is, therefore, a triple sulphuret of iron and copper, with one or more of the earths, and is ultimately submitted to two series of manipulation which, in the most simple case, may be reduced to two operations. The first operation is a *calcination*, during which, under the influence of atmospheric oxygen, and a high temperature, the greater part of the sulphur is volatilised as sulphurous acid, and the two metals of the decomposed compound oxidised, but only partially. The second is a *fusion*; when under the influence of a very high temperature, certain reducing agents and silica, the copper is reduced to the metallic state; the oxide of iron to that of silicate—two bodies equally fluid, but which, by reason of their very unequal density, separate readily one from the other; the silicate of iron, or slag, always occupying the upper stratum.

The copper thus obtained in contact with silicate of iron, and a quantity of regenerated "metal," generally contains a certain proportion of iron and sulphur, and is thus unfit for the greater part of the uses to which copper is applied. This can be prevented, however, by proper management, as the author has proved on a considerable scale. This impure product, called *black copper*, is converted into pure copper by an operation called *refining*, in which, under the influence of heat, atmospheric oxygen, and silica, the least traces of foreign matters are separated—that is to say, the sulphur as sulphurous acid, and the iron as silicate. The addition of a small quantity of lead is sometimes requisite when the refining is obstinate. The copper, however, is not yet fit for the market for sheathing, &c.; it must undergo a process called *poling* or *toughening*. This operation, as its latter name expresses, is instituted for the purpose of giving tenacity to the metallic copper, which, after the refining, is to a considerable extent destitute of that property.

The treatment of the sulphur ores of copper is thus comprised in four fundamental operations:—A, the melting, in which the "metal" is separated from the slag, or greater part of the earthy matters; B, calcination of the metal; C, melting the calcined metal for black copper; D, refining the black copper; but in the application in various localities of this sufficiently simple formula, many modifications, due to the extreme variety of the minerals, are introduced. Among the circumstances which tend to complicate the preceding formula, are more particularly the following—all due to the composition of the minerals to be smelted.

If the gangue of the ore is essentially iron pyrites, it is impossible to materially enrich it by submitting it to the operation, A, because all the elements of the mineral would combine, and form a metal having very nearly the composition of the ore itself. It is, therefore, evident that in this case the ore must undergo an operation analogous to the calcination, B, in which that portion of the iron and sulphur, which is not essential to the formation of a good metal is separated. This preparatory operation may be called *calcination of the ores*, &c.

The ore suitably calcined in A is precisely in the state of a rough ore, containing the quantity of sulphurets of iron necessary for the fusion, A. The gangue in this case is oxide of iron, which must be passed into the slag by the addition of a siliceous flux. It is evident that the possession of an ore of copper, having a siliceous matrix, would in this case be a great advantage; for, by mixing it with either the rough ore or the calcined ore, A, its copper would unite with the proper proportion of sulphur and iron to form metal in the melting, A, and thus the addition of a perfectly worthless matter—as sand, for instance—would be avoided. Very siliceous, and, consequently, very poor ore, can be advantageously employed in the fusion, A, ores in which the metal contained as oxide (suboxide, black oxide, green and blue carbonate, silicate, &c.). In this case, however, it is necessary to leave in the calcined ore, A, not only the quantity of sulphurets of iron necessary to form the metal, A, with the copper contained in the ore, but also enough to bring to the desired state of sulphuration the copper of the oxidised compounds added. If independently of the preceding ore very rich ores, with a quartzose gangue, are at hand, they cannot be added to the fusion, A, without enriching the metal more than is desirable. These ores should be worked up by mixing them with the calcined metal in the melting, C. They are, indeed, of the same nature as the ores before mentioned, but far richer; and it is owing to the large quantity of copper, oxygen, and quartz they contain, and that of the oxide of iron in the calcined metal, that their presence in the melting, C, is more advantageous than sterile matters, and also more advantageous in this than in the first melting. Some smelters fall into great error in thus throwing back their rich oxidised ores at first; for the metal obtained from such operations can seldom or ever be refined to the proper pitch, owing to the presence of certain substances which, once present, can scarcely or ever be perfectly separated by this operation. This will be explained in its due place.

These examples suffice to show how the possession of ores, differing greatly in composition and per centage, serve to modify the fundamental operations, as already described, in their various applications. Another essential cause of complication is found in the presence of certain injurious substances, associated with many of the ores; they must either be expelled in the gaseous state, or must be got rid of in the slag, otherwise the copper produced will be of inferior quality. Amongst these substances may be mentioned arsenic, antimony, tin, nickel, cobalt, the earthy metals, and probably some other substances, not yet noticed, either because a thorough examination has not been instituted, or because the quantities operated on have been too small. This is a point to which few chemists direct their attention in the examination of manufacturing products, ores, &c., for quantities of certain substances, which it would be totally impossible to detect, much more estimate, in the usual amounts employed in analysis, would completely overthrow the good working of any factory. This fact I am afraid has much tended to influence the apparent value of the services capable of being rendered by the chemist to the manufacturer, on account of the frequent failures of alterations, &c., recommended by an otherwise thoroughly competent person.

The substances already mentioned as being injurious have a tendency to separate from the cupiferous products in the operations preceding the production of black copper, arsenic, antimony, volatilise either directly in the calcinations, or especially after conversion into oxidised compounds. Metals, such as nickel, cobalt, &c., separate by the united influence of calcination and melting, by which all the substances more oxidisable than copper are, by preference, converted into oxides and silicates; but these reactions are never or seldom produced in a complete manner. Thus, for instance, in a calcination the sulphurets of arsenic, as well as many other metallic sulphurets with which it is associated, is not fully and entirely exposed, in all its parts, to an oxidising influence; the arsenic of the portion attacked is not entirely converted into volatile arsenious acid; a certain portion is induced, by the presence of metallic oxides, to pass to a higher state of oxidation, and remains as arsenate in the fixed product of calcination. In the melting following this calcination the unattacked sulphurets immediately forms part of the "metal." The arsenate is decomposed under the influence of silica, which removes the metallic base; the acid is set at liberty, and partly decomposed into oxygen and arsenious

acid, which pass off, but under the influence of the sulphur always present in the metal, another part of the arsenic forms sulphuret, a portion of which is volatilised; but another portion becomes fixed in the metal, in consequence of the affinity of the sulphurets of copper and iron, and the alkaline metals with which it is in contact, and thus again is recombined after this series of transformations. Each calcination and each melting thus expels a considerable quantity of arsenic, but leaves in the cupiferous product a notable proportion of that which existed before the double elaboration. To expel the whole of the arsenic contained in certain ores, or, at least, to leave in the copper only an insignificant quantity, it is necessary to repeat many times the alternate calcinations and meltings in the "metal" before obtaining black copper. It is, therefore, not uncommon to find in some works where this end has to be attained that there are two calcinations and meltings between the fundamental operations, B and C. For like reasons these supplementary operations are indispensable when it is necessary to completely separate some other injurious substances from copper. Many other reasons also urge a modification of the fundamental formula in treating copper ores; but by confining ourselves to two cases which are most general, it will be seen that, in order to manufacture good copper with ores of all per centage and qualities, nine operations are generally required:—

- Calcination of ores with pyritous gangue.
- Melting of calcined ores, A, with the poorest and most impure rough ores—formation of first metal.
- Calcination of metal A.
- Melting of calcined metal, B, with ores of mean per centage and purity—formation of second metal.
- Calcination of metal B.
- Melting of calcined metal, C, with rich and pure ores—formation of third metal.
- Calcination of metal C.
- Melting of calcined metal, D, with very rich and pure ores—formation of black copper.
- Refining of black copper.

The above summary appears to point out the chief principles in the treatment of copper ores, to show the analogy existing between the continental and Welsh methods, and to forcibly urge on the notice the peculiarities of the latter.

[To be continued in next week's *Mining Journal*.]

IMPROVED METHOD OF ESTIMATING TIN.

Hitherto in chemical analysis tin has always been estimated in the form of stannic acid (peroxide of tin). The difficulty of the manipulations, or rather the minute care that they require, the time necessarily spent in its preparation, washing, and drying, as well as the inevitable inaccuracy of the process, form often a hindrance to the analysis of this metal. The new method depends on the employment of a normal test liquor, and possesses a simplicity and correctness not otherwise attainable. The process depends on the facility with which protochloride of tin withdraws chlorine from bodies capable of furnishing it. If we pour the orange-coloured solution of perchloride of iron into protochloride of tin (which is colourless), the former salt will give up one atom of chlorine, converting it into the colourless perchloride, and will itself be reduced to the (colourless) protochloride of iron. $\text{Fe}^2\text{Cl}^3 + \text{SnCl}^2 = 2(\text{FeCl}) + \text{SnCl}^4$. The decoloration of the iron takes place, therefore, as long as the tin requires more chlorine; but as soon as the protochloride is perchlorinized, the smallest additional drop of the iron liquor will give a strong orange tint, and thus show that the operation is at an end. If the strength of the iron solution be known, we know at once the quantity of tin sought for. This system of analysis (with normal test liquors) is so much in use that all particulars may be omitted, except those relating expressly to tin. For this purpose 1 or 2 grammes (15 to 30 gr.) of the substance to be examined are placed in a pint flask, with a mixture of 1 part nitric with 6 parts of muriatic acid, and boiled until the liquid turns yellow, and emits a strong odour of chlorine. The tin is now in solution as protochloride. Zinc is now added, until the liquid becomes clear, colourless, and transparent. Then, with a graduated dropping tube, a solution of perchloride of iron of a known strength is added, until a faint tinge appears, and the amount of tin is found by a simple computation. The addition of some water to the liquor to be tested is useful, especially in examining alloys which contain copper. Arsenic is the only metal which interferes with this process. Tin containing this substance must be strongly heated for some time in a crucible, when the arsenic is volatilised, and the residue may be treated as above. To prepare perchloride of iron, peroxide of iron is employed, or, better still, colcothar, which is boiled for about 10 minutes in muriatic acid, and filtered immediately. This liquid does not change, and may be kept for any length of time. To make the solution of perchloride of iron of a known strength, we should weigh out exactly 1 gramme of tin, find what number of degrees on the dropping tube is required for the perchloride, and compare it with the result of analysis.

THE GAS COMPANIES.

If the price of coal regulates the price of gas, which was pretty often alleged during the late agitation of the question of a supply of gas to the metropolis, it seems to be a rule that admits of the most remarkable exceptions. As an example, we will take the first name in the return from gas companies, just published. Accrington pays 9s. 3d. and 14s. 3d. per ton for coals, and charges 7s. to 4s. per 1000 cubic feet. We must suppose the proportion between the prices of coals and gas to be perfectly just. It gives on the average 11s. 9d. for coals, and demands 5s. 6d. for gas. Then, the next place, Ashton-under-Lyne, gives 7s. 6d. and 14s. 6d., or an average of 11s. for coals, and charges 5s. 6d. for gas. On this difference in the price of coals, the Ashton Company have 10l. rate per cent. of dividend, while the Accrington Company have only 5l. As the coals at Ashton are 11s. the gas should be only 5s. 3d., on the supposition that the ratio of gas to coals at Accrington is fair to the consumers.

On the same supposition, Croydon might charge 8s. 10d. for gas, as the coals cost 19s.; but the charge is only 7s. The amount of paid-up capital here is 20,000l., and the rate per cent. of dividend is 5l.

More striking differences than the above are exhibited in the return, but our only object was to show the want of regularity. We have always understood the proportion at Manchester to be reasonable. In that city the gas-works are public property, and the profits are devoted to the public service. The gas is of a superior quality, and the management of it has been productive of much profit and advantage to the inhabitants. The price of coals is returned at 15s. 6d., or exactly the same as the price returned by the Commercial and Ratcliff Companies in London. In Manchester the price of gas is 4s. 9d.; but these companies charge 6s., or 1s. 3d. more, for every 1000 feet consumed. Another very striking difference is found in Manchester, the rate per cent. of dividend is 10l. 3s., the highest except at Wigan; but the rate returned by the Commercial Company is 6l., and by the Ratcliff 5l. Wigan returns the rate per cent. of dividend 12l. 10s., but then, with coals at only 9s. 4d. per ton, the gas is 6s. and 5s. It is perfectly clear, that if Manchester can make a large dividend of 10 per cent. with gas furnished at 4s. 9d., produced from coals at 15s. 6d., the London Companies, which pay different prices, ranging between 13s. 11d. and 20s. 5d., and which (excepting the City of London) charge 5s. 10d. to 8s. 6d., must realise very large profits. Two, however, return "nil" in the column of "Rate per cent. of last dividend;" one, 4l. 10s.; and another 5l., and the rest, 6l.

The City of London Company merits especial notice; it pays 15s. 9d. for coals, or 3d. per ton more than Manchester, and charges 4s., or 9d. less than Manchester, for gas. Manchester has 274,427 paid-up capital, and the City of London 300,000l. The rate per cent. of dividend is very nearly the same. In 1847, the charge for gas was 7s., and the price of coals 17s. 4d. for the City Company; in Manchester the gas was 5s. 6d., and the coals 15s.; in 1848, gas 6s., and coals 17s., in the City, and in Manchester, 4s. 9d. gas, 15s. 6d. coals; in 1849, 5s. from Midsummer, but reduced to 4s. for gas in the City; coals, 15s. 9d.; the prices in Manchester remaining the same.

The other London companies appear to have computed the charge for gas from the ratio existing between the price of gas and coals in some place or other where the latter are dear, and where, consequently, it is but reasonable that the gas should be proportionally high. Thus, at Oxford, the coals cost 22s. 4d., and the gas 8s. 4d.; 10 of our companies pay on the average 13s. 5d. per ton of coals, from which the gas, on the Oxford proportion, should be 6s. 9d.; it is but 6s.; but when 6s. are compared with either the City of London 4s., or the Manchester 4s. 9d., both paying more for coals, we feel satisfied that the charges of all the companies, except the City of London, are most exorbitant.

Gas in large towns and cities has become a necessary of life, and people

may be excused for feeling as much indignation at overcharge for the sole benefit of trading speculators, as at the late tax on bread for the exclusive advantage of a few great landlords. With respect to the latter, however, the people could not help themselves, but there was nothing to have prevented them from taking the supply of gas entirely into their own hands. Notwithstanding a few losses by jobbing, they might long ago have relieved themselves from many of the heaviest parochial burdens. If each parish had displayed the same good sense that actuated the people of Manchester, and had disregarded the taunt, prompted by self-interest, that they were becoming dealers in coals and gas, they would at this moment have had purer lights at less cost; and at the same time have had less to contribute expressly towards poor and police. The system of self-supply of gas, besides relieving the people of Manchester from rates, enabled them, several years ago, to erect a large and magnificent town-hall of stone brought from a distance. The date of their first Act for lighting gas is 1824, and the building was commenced between that year and 1830, when the second Act was passed. From this circumstance, and all that we can learn from the return, large profits are obtained when coals are about 15s., and gas about 4s. We, therefore, recommend the institution of such an agitation as will cause the London companies to be more reasonable.

THE COAL TRADE—NO MONOPOLY.

The owners of the collieries in Durham and Northumberland have lately entered into a combination to reduce their production, with the view of obtaining for the future what they consider a remunerating price for their coals. It is, in fact, a revival of the old system of the *vend*, which prevailed for so long a time, and which was only relinquished a few years ago because it had notoriously failed in realizing the objects contemplated by its originators. It had the effect of checking the demand in a very great degree, but it did not rescue from embarrassment those who had been unfortunate in coal speculations, or who possessed pits unfavourably situated. The mode in which this system was worked was simply this:—the productive power of the various collieries having been estimated and registered, the quantity of coal required for the London market was settled monthly, and was then apportioned among the collieries according to the amounts at which they were respectively registered. In the present instance, the coalowners have determined upon the quantity to be raised during the year for household use, and have divided it among the first-class collieries. They have also decided what per centage of coal is to be taken to market in the different months of the year; and, for the moment, the aim of the association has been so far attained that the price of the article has risen 2s. per chaldron. To the inhabitants of London, who draw their principal supplies of fuel from the northern collieries, this is a very serious consideration; for they will unquestionably have to pay a higher price for Newcastle coal than they have done of late, though it is by no means clear that the arrangement will be to the immediate or ultimate profit of the coalowners. The rules devised by the association are constructed upon a principle which is false in theory, and which has already been condemned by experience.

Whilst an unrestricted competition existed between the different collieries, those which could produce at the cheapest rate had naturally the largest and most lucrative share of the trade. Those, on the other hand, which possessed few natural advantages, or which were conducted with small capitals, were all more or less unprofitable concerns. But the consumer had the advantage of being supplied with the coal which could be most economically raised and brought to market. The tendency of a continued competition would have been to cause the less productive mines to be gradually abandoned, and to attract more capital and labour to the richest and most accessible veins. Such a result would have been a general advantage to every interest whose prosperity depends upon a cheap and abundant supply of coal. But acting under a mistaken view of local interests, the coalowners of the north have determined to try an experiment which must entail loss upon themselves, and which must compel the consumer to look to other sources for his supplies. It is obvious that, wherever a given quantity of coal can be produced at a remunerating price, the restriction of production below that limit must be a certain and immediate loss. Now works have been formed and machines erected to produce the larger amount, and as the outlay cannot be diminished, the cost of production must, therefore, be increased by the new regulations; and such is the actual position of the most profitable mines. But with regard to those for the benefit of which these regulations have been made the case is far worse. Their proprietors have been induced, by the small margin of profit anticipated from the operation of the *vend*, to sink deeper shafts, and to erect more powerful engines, so as to enable them to furnish their prescribed quota. Here, therefore, the art of production will be carried to its highest possible limits, until finally many of the mines will be abandoned, as was frequently the case under the ancient system of restricted production. But this is on the supposition that the fictitious price established by the combination can be permanently maintained. If it be found practicable to supply the metropolitan and other markets from the vast districts of Yorkshire and Derbyshire, it is obvious that the whole arrangement will at once fall to the ground, and the only result will be the loss sustained by the greatest collieries during the trial of this irregular remedy for low prices.

Notwithstanding the large fortunes that have been made in the coal trade, it may be doubted whether it has been more uniformly remunerative than other commercial undertakings. It requires the expenditure of an enormous capital, and it is subject to peculiar dangers and uncertainties from which other investments are comparatively free. The merchant can insure his ships and the farmer his produce against the fury of the elements; but the coal mine is so dangerous that no one will undertake the risk to which it is exposed from fire and floods. Besides this, after a very great outlay has been made, there is the same chance of disappointment as in other mining speculations. The opening of a new mine is very expensive, and the result of the operations very uncertain, while the depth of many of the old ones makes the machinery for draining off the water and for raising the minerals exceedingly costly. The carriage, too, to the seaside adds a very considerable item to the charges; so that, except with good fortune equal to that of the individual who draws a prize in a lottery, the coalowner does not often make very large profits. It is not, therefore, difficult to imagine, in spite of the active home demand and the increased importance of the foreign trade, that many of the coal mines may be working with scarcely any profit, except to the labourer and the landlord. As long as a seam is worked, the former must receive his wages and the latter his royalties, but the returns upon the capital invested in the works must depend entirely upon the facilities of production. Any attempt to determine profits and to regulate prices by agreement must inevitably fail; for price must be governed by the demand, and by the cost of producing the article required. It is a strange thing to see the masters acting upon precisely the same false principles as are asserted by the pithmen in a strike. It is superfluous for the Duke of Cleveland to make a pilgrimage to the north to preach the fallacies of protection. The coalowners have the start of him, as they have also the advantage in point of candour; for they avow that their object is purely a financial one, and they do not feel it incumbent upon them to talk nonsense about native industry. But it is remarkable that the proverbial intelligence of the north country should have failed in such a very simple question. It is quite unintelligible why the coalminers, who have been doing well, should consent to forego a part of their trade, unless they suppose that, by the measures which they have adopted, their gains will not be lessened whilst their mines will be less rapidly exhausted—a confidence in the efficacy of commercial restriction which we believed had been confined to the school of political economists of which Mr. G. F. Young is the leader. But it is not surprising that the less successful masters of collieries should have been anxious to try a system, however artificial, which promises them a short reprieve. They, indeed, may profit for a time by the new regulations, as the effect of the combination will be to encourage producers who cannot produce well or cheaply; but the really productive collieries must be prepared to make a considerable sacrifice of their present profits, and the consumers of their produce, to pay a much higher price for their coals.

In these days, however, the London market need not depend exclusively on Newcastle and Sunderland; for the extension of the railway system has brought within reach of the metropolis the resources of the inland coalfields, and the rise in price established in the north will but serve to quicken the rising competition, and to increase its extent. Every additional penny on the price of coals in London will make a larger area of the coal-producing parts of England available for the supply of the metropolis. With railroads penetrating into the heart of the richest mineral districts, and with an active competition among them for the traffic, it is far from unlikely that a great portion of the fuel required in London may be supplied hereafter from the midland counties. The re-establishment of the monopoly in the

north—for it can be called by no other name—will tend more than anything else to alter the direction of the London coal trade. Every year the difference of expense between land and water carriage diminishes, and the advantage, in point of economy of time, is infinitely in favour of the former. The step, therefore, which has been taken by the coalowners will be most injurious to themselves; and the mischief which it will do to the consumer will probably last only long enough to produce a lasting remedy. In the meantime, the trade of Newcastle will be a good deal interfered with, and the local shipping interest will have reason to regret the folly and ignorance of the gentlemen who have re-organised the vend. We are willing to hope that a short experience of its effects will be sufficient to induce its present advocates to retract their steps. We should be sorry to think that the subterranean occupations of the coalowners have impaired their usually acute intellectual vision.

In spite of the example set by the Duke of Cleveland, we cannot believe that the counties of Northumberland and Durham will become a school of monopolists, or that a system will long be persevered in, which must prove as unprofitable in practice as it is false in principle.—*Morning Chronicle*.

Original Correspondence.

THE FURNACE PARADOX.

SIR,—I might very justly demur to Professor Hann's mode of convicting me of contradiction in his letter of the 12th inst., because nothing is more easy than to give passages a wrong meaning, by abstracting them from the context, and it is evident the full meaning of the last passage he quotes is destroyed by isolating it. I will not, however, avail myself of this strict objection, but take the passages as he contrasts them, evidently anticipating that they are the horns of a formidable dilemma. Surely Prof. Hann must be aware how great a difference there is between asserting that a power is constant, and asserting that its effects are constant. For instance, a steam-vessel will make a very different rate of sailing, according to the state of tides, winds, currents, &c.; yet nothing could be more incorrect than to allege therefrom that the steam-power was not constant, and instead of explaining the retardation by its natural causes, to assert there was a paradox in the steam-power, by which it diminished itself. The power of the furnace is one thing; furnace ventilation, which is the effect of that power, is another thing quite distinct, and the opposed passages involve no contradiction when I admit inconsistency in furnace ventilation, and yet assert the constancy of the power which produces it. My remarks were solely and entirely addressed to that form of the paradox in which it is asserted that the furnace has the variable power of glutting itself with cold air, and diminishing its own action. This is the inconsistency which I dispute, and not an inconsistency produced in this and every other ventilation by extraneous causes. I willingly acquit Prof. Hann of any intention of misconstruing me, but I cannot acquit him of a want of precision, not to be expected in a professor of the exact sciences; and my annoyance arose from his letter, assailing me upon every topic except that one upon which I had written. I should have been pleased had he advanced an opinion upon the particular feature of paradox which I referred to; but he still makes no allusion to it, and recurs again to the natural brattice, whence I must conclude that the other has been dismissed as untenable. I do not much approve the attributing natural phenomena to "paradoxes" and "magical quantities," because we are certain there is no effect without its natural cause, however subtle it may be to investigation; and to rest content that it is under a spell, hinders the mind from the much more profitable task of ascertaining that cause. The remarks with which the professor favoured me were, in fact, an efflorescence, to which my proposition formed a small nucleus of quite a different substance. But, perhaps, where paradoxes are the theme, it is most in character to treat upon them paradoxically; accordingly, I write upon one subject, and receive an answer upon another.

The natural brattice, which I assume, upon the testimony of Mr. Gurney, is actually produced in upcast shafts, he attributes, undoubtedly with truth, to the existence of such an amount of obstruction in the passages of the mine, that instead of the whole ascending current being derived, as it is intended to be, from the interior, a portion descends from the surface by the more easy direct course down those least buoyant regions of the upcast, which are not vertical over the furnace, and ascending again up the heated centre, establishing a nungatory circulation instead of a current through the mine. Now, it is quite obvious that no way can be taken to establish this action more effectually than by having an upcast of great diameter. Were the formation of this natural brattice the inevitable and inseparable consequence of furnace power, it might then be quite proper, and indeed imperative, to seek out, as Prof. Hann proposes, some new method of ventilation. But, on the contrary, nothing can be more easily and certainly prevented than the formation of this mischievous current. All that is required is the due proportional arrangement of the two elements of furnace ventilation, and which are directly opposite in their action. The first is the descent of the intake, and its consequent passage through the galleries of the mine by the force of gravitation. The second is the ascent of the current to the surface against that force. If the obstruction of the air-courses presents a resistance greater than the weight of the descending air of the downcast, or if the capacity of the upcast is greater than is required for the due ascent of the heated current against the superincumbent atmosphere, facilitating, by a large area, its pressure and descent, then the vicious circulation alluded to has its two causes in existence. The first cause is the old evil of giving the moving power too much to do by too great length and flexure in the air-ways. In such a case where the steam-jet is applied as an additional force to heighten the vacuum, and drag the air through the obstructions, a greater capacity and smaller length of air-course, obtained by splitting the air, would gain the same result at a smaller current expense, unless, indeed, there is spare steam on the spot. Where such an alteration to enlarged channels cannot conveniently be made, the steam-jet is an undoubted acquisition; but I doubt much if it is that unlimited power which its warmest advocates suppose. There is evidently the same check to its extent as that which checks the furnace. The air will rush into the vacuum created by it with no more force than is due to the pressure from behind. As much as is deducted from this pressure by obstruction in the mine, so much less will be the supply which follows the jet. It cannot, therefore, any more than the furnace, supersede the necessity of the main elements of good ventilation—straight and capacious air-channels—whilst the existence of these will, on the other hand, make the jet unnecessary. Mr. Gurney, I believe, at first was inclined to consider the greatest extent of power open to the steam-jet was by its use at the downcast, to force in air; and (setting aside expediency) this seems correct, because the whole pressure of the atmosphere can there be made available without let or hindrance; and the air once forced in, at whatever compression, the whole increased weight of it in the downcast column will bear upon the levity of the rarefied upcast. But I do not see how any unlimited power of compression can exist, because the supply of air is limited by the atmospheric pressure. Whatever force is given to the steam, the air cannot follow faster, as a maximum, than the rate of air rushing into a perfect vacuum under the weight of the atmosphere, which is about 1300 ft. per second. Exceeding this the steam will outstrip the air, and produce no commensurate effect.

The second cause tending to promote the formation of the natural brattice is still more easily corrected than the first. If the upcast is too large, so that the ascending column of buoyant air does not fill its whole extent with due velocity and momentum, thereby permitting the superincumbent atmosphere to find its way against the sluggish stream down the sides of the shaft, nothing is required but the contraction of the mouth of the upcast. If this is done sufficiently to maintain the exit of the heated current at the velocity due to its levity, the formation of a natural brattice is impossible. It will increase, not diminish the discharge. Unless applied with such arrangements, the full power that can be gained by the furnace is not known. There must be something very wrong in the construction of any upcast which will permit one particle of atmospheric air to descend it against a buoyant column, several hundred feet in depth, and heated even to the low average of 150°. What natural reason can be given for the alleged paradox that no higher temperature than this can be maintained in an upcast? Cannot the heat of a puddling-furnace chimney be raised above 150°? What is, then, to bar a high temperature in a chimney of 300 yards, when it can be obtained in one of 300 inches?—Nothing but defective proportions for the access and the exit of the air. A uniform momentum of the whole current is the great element of these; there is no physical law for establishing momentum, except the compensation of deficient weight by velocity. The rope of air to which Mr. Gurney appropriately likens the current through the galleries, cannot be

dragged through by a thread of inferior strength, especially as it must push as well as pull. It is not the mere existence of vacuum, or rarefaction, in the upcast shaft that produces ventilation, but *their motion*. What is it that hinders the atmosphere from rushing into that vacuum the shortest way?—Motion alone. And if that movement has not velocity given to it to compensate the loss of weight, it must be overpowered. Paradoxical as it may be termed, could a perfect vacuum be maintained in the upcast, the course of ventilation must cease, because there would exist no matter to check the descent of the atmosphere by the nearest channel, and the upcast would be filled from the surface. It is this law which has been found to oppose a limit to the power of the furnace. If the upcast be heated or rarefied to that point, that the momentum of the ascending column, dependent on its area, is less than the momentum of the intake, increase of heat produces no increase of current. As the ordinary capacities of upcasts happen to be about that average, which is proportioned to give a due velocity at a temperature something exceeding 100°, so also the ordinary amount of air passing per square foot is found by Mr. Gurney to range near a certain average; but it appears in the data he advances to support this, there is a very considerable oversight on his part. He quotes Haswell upcast at 109 ft. area. Now, in Mr. Elliot's evidence, the downcast is given at 110 ft., the upcast at 58 ft., which is also confirmed by Mr. Phillips (page 24); and the actual quantity of air passed by this upcast shaft is 94,900 cubic feet per minute (see Lord's Report, page 294), or very nearly double the amount of the average of 1000 ft. per foot per minute, which Mr. Gurney seeks to establish as the maximum quantity which can possibly be produced by furnace ventilation. This shaft, which passes per foot of its area twice the quantity of any other, is the same which I have already quoted as having been reduced by a brick lining, and its efficiency in consequence increased. The current also has the greatest velocity ever measured, proving irrefragably my theory of the effects of, and the demand for, velocity to give a compensating momentum. I am inclined to believe the greatest effects of the steam jet may be outdone by due attention to this law; and as to the natural brattice, its existence is inexcusable, where there are any bricks and mortar to narrow the gaping orifice. Mr. Gurney suggested the steam jet for ventilation, under the impression of its great effects in producing draft in locomotives; but this is just the position where it is most needed, and a deep mine the position where it is least needed. The height of a funnel gives so short a rarefied column, that additional power is required; but to any one conversant with the power of high chimneys, the notion of a limited draught, with a chimney of 1000 ft., appears monstrous. Great expectations were entertained at the time of Mr. Forster's evidence, as to the effect to be produced by applying the steam to a second upcast at Seaton Delaval. There is no further account of this in Mr. Phillips's later account; but, if my views are correct, this application would by no means double the quantity already passed by one upcast.

Many able men were examined before the Lord's Committee, but I was always struck with the acuteness of Mr. Elliot's remarks. He alludes to the probable momentum gained by the air of the downcast in its descent as an element of power. This deserves attention. That a ton of air, or whatever weight it may be, according to the depth of shaft, must acquire additional force, proportioned to the velocity with which it falls, seems unquestionable. When this falls dead upon the floor of the mine, and then has to start off at right angles into the air-ways, there must be an enormous loss of power. Were the air split off by oblique passages out of the shaft at some elevation, curving gradually to the horizontal position as they approached the air-ways, and the roads at the bottom of the shaft closed by doors, or the shaft itself closed by four or more segments, forming a pyramidal obstruction, the base level with the base of the air-passages, so that the whole intake should enter through these curves, a great part of this supposed loss would be prevented, and the momentum preserved, to act in the more direct propulsion of the current through the workings. Whether the steam-jet may be hereafter applied in new economical arrangements, for deeper collieries to be won, seems a question. An area of one square foot will pass about 20,000 cubic feet of air per minute under a pressure of 1 lb. per inch. A steam-jet, therefore, acting in an air-channel, such as Mr. Gibbons attaches to his shafts, at a pressure of 1 lb. per inch, would produce a current (without deductions) exceeding 100,000 cubic feet per minute. Four of these attached to one shaft, and the air split, would readily pass 500,000 feet per minute. The steam taken down the centre of the channel would impart whatever heat it lost in the passage to the included air. The underground furnace, which has disadvantages united with its merits, would be got rid of, and with it the great loss of power, caused by the generation of carbonic acid gas. The greatest point to be obtained would be the safety of such channels against the force of explosion. Were this engineering difficulty effectually overcome in their construction, very deep collieries might, perhaps, be opened, at far less expense than at present, with full efficiency of ventilation.

Sept. 28.

RED-SHORT IRON.

SIR,—I did not see your Journal for three weeks, or I should have offered a remark or two at the time of the discussion on this intricate subject. The fact which seems by itself to be best established, is that rich ores tend to produce red-short iron; and as such iron is extremely tough and perfect when cold, it seems almost a just inference that the red-short is a quality of the purity rather than of the alloy of iron. So also rich ores which are mineralised predominantly with silica, yield red-short iron, as well as those which are mineralised with lime; this, again, is opposed to the presumed notion that red short arises in an alloy of calcium. One ground on which this alloy has been assumed, is the fact that the application of lime cures cold-short and imparts fibre. But assuming phosphorous silica, or any other impurity, to be the cause of cold short, lime may remove these impurities, without it at all following as a necessary inference that the effect is produced by a further alloy of itself; indeed, this latter inference is not so philosophical as the former. So also that degree of cold-short which the presence of a small proportion of carbon produces, may have its removal attributed to the decarbonising effects of lime, without any necessity of supposing an alloy of calcium. For my own part, I cannot but look with great mistrust on any theories which assume the existence of alloys of the metalline bases of the earths during the exposed processes of the manufacture of iron. I am aware that Mr. Mitchell and other chemists have recognised such alloys, in spite of the great difficulty of conceiving these highly oxidisable substances to be preserved in the metallic state in the blast and other furnaces. They are better judges than I am of the certainty of the tests which are to discriminate between the presence of these matters as metals, or as mere mixtures in their ordinary state of earths; but, at the least, it seems a question of the most extreme nicety. Until such alloys are indisputably produced by synthesis, and not merely detected by analysis, a very great element of proof is wanting. I do not deny their existence as a possibility, but would rather see their effects demonstrated than assumed. The immediate cause of red-short, whatever may be the prior or superinducing cause, seems to be in a certain arrangement of the particles of the metal when passing into the rigid state,—the shrinkage at that time producing such a rapid strain upon the particles, that their power of cohesion will not bear the further trial of bending or concussion. The question is still more complicated by the fact, that the point of weakness is developed at different stages of cooling, from a bright red down to the darkest shade of that colour. A series of observations and measurements of the rapidity of shrinkage of various bars of iron, at successive temperatures, might throw light upon the question. It is not difficult to conceive that iron, which is arranging itself in longitudinal bundles, should be more disposed to lose the coherence of those threads when strained during shrinkage—beginning of course at those which are most tried at the exterior arch of the bend, than iron which is arranging itself in a more open and crystalline texture, where an expansive action is opposed to shrinkage. It is a fact which bears considerably on this view, that pig-iron which produces a fine quality of tough bar-iron, accompanied with red-short, is found, when used alone in the foundry, to yield castings with a great tendency to draw or warp when cooling. The fact, also, which has been thoroughly established by the Government inquiry into the subject, that the best and strongest castings are made by mixtures of pig-iron, is accounted for by the arrangement of particles which the mixture induces, and not by the supposition of a combination of alloys of extraneous components involved in the different samples of metals. If bar-iron is very pure, we may even conceive the possibility of a greater susceptibility of oxidation tending to promote the rupture, and which would be more probable, if it is a correct view which has been taken by some, that the red-shortness of iron, from very rich ores, is partly caused by the presence of minute unremoved particles of oxide; whilst, on the other hand, the carbon or silica which have been detected in cold-short iron may act as a protective from oxidation, precisely as they are so used

during the operation of welding. It is very probable, as Mr. Mitchell suggests, that sulphur may have an effect in promoting red-short, but as lime also produces red-short, and is in itself the greatest corrective and purifier from sulphur, we are here landed again in an apparent contradiction. I do not think it can be asserted as any general rule, that hot-blast favours red-shortness; it can much more safely be asserted that it rather increases whatever natural tendency the ores possess, whether it be to red or cold-short. Certain facts could only be arrived at by extensive experiments in smelting ores simply without admixture, much more than is now generally practised. I know ores that produce tough iron with the usual red-short taint when smelted with charcoal; this red-short rather increases when pit coal is used with cold-blast, and there is, perhaps, some little further addition of red-short with hot air, but there is a different command of materials obtained by the three processes, which may, perhaps, quite as fully as an increase of sulphur, be brought to account for the change; and, indeed, some other reason is called for, because the minute proportion of sulphur which Mr. Mitchell adduces as having produced red-short, must in general be very far exceeded in all iron that is manufactured with pit coal.

In considering this subject, it has struck me that what my father considered a paradoxical effect of lime in promoting the decarbonisation of bar-iron, and yet promoting the carbonisation of pig-iron, may find an explanation in the views which have been taken by accurate chemists as to the proportions of carbon in pig-iron. If white iron contains most carbon, and the phenomena of mottled and grey iron arise in the gradual disengagement of portions of that maximum in the form of graphite, it will then appear that the lime in excess, which is so absolutely essential to the production of these shades of metal, really acts as a decarboniser equally in pig-iron as in bar-iron. The more lime is present either in the blast-furnace or the crucible, the more bright, copious, and perfect is the development of graphite. So much so, that lime seems as necessary as iron or carbon in the operation of forming it. Whatever are really the agencies attendant on the formation of grey metal, all tend to indicate the existence of an internal evolution. When highly carburised in the crucible, the iron is entirely dispersed in globules, showing that there is in progress an action inimical to coherence.—*DAVID MUSHET: Oct. 3.*

CALIFORNIA.

SIR,—I perceive, by late California papers, that gold digging is being carried on in a more systematic manner than hitherto. The miners are making deeper excavations, and paying more attention to the striated quartz—the richest matrix of gold; and I should suppose that, ere now, the folly of breaking up companies through individual avarice, so prevalent in 1849, has been demonstrated by sad experience.

Under those circumstances, it is to be expected that, henceforth, the results of gold digging will be much more uniform, certain, and remunerative—the majority of cases of failure having been owing to the fact that the necessities of individuals obliged them to quit the mines in search of other means of living, unless they met with almost immediate success.

A company, in possession of three or four miles, being enabled to have always a stock of provisions at a cheap rate, can afford to bear a run of ill-luck for a week or so, and work steadily on, with the certainty of averaging, good and bad digging together, a very large return; but the solitary individual digger, after a short run of bad-luck, is penniless, and has not means of buying biscuit; he is, therefore, afraid to persevere, which he can only do by getting credit at the provision tent; and throwing up gold digging as a bad job, gives it a bad name. But a company of steady men, working regularly, and without any extraordinary exertion, not disheartened by a bad day's work, and unadvisedly and hurriedly abandoning the digging, but pursuing it as a business, must, in a very short period, meet with immense success.

EDWARD CULLEN, M.D.

Commercial-place, Finsbury, October 11.

COMPRESSED-AIR ENGINES FOR MINES.

SIR,—I have observed in your Journal of this week that a discussion has taken place at the Polytechnic Society in Cornwall on the merits of compressed air for transmitting power to considerable distances underground. Having recently made some experiments on this subject, I am led fully to concur in the opinion expressed by Mr. Taylor, that, owing to the great leakage of this subtle medium, with other practical difficulties, the free adoption of this system cannot be recommended. In the course of working an extensive colliery, with which I am connected, faults were met with which altered the dip of the coal, throwing a portion of the seam under level; and there being no means of draining the water from it except by pumping, a small high-pressure engine was set up for that purpose underground, at a distance of 600 yards from the drawing shaft, with the intention of working it by compressed-air, prepared by steam-power at the surface. A small air-pump was then fixed for generating the required supply of air, and connected with the engine underground, by wrought iron pipes, 1½-in. diameter; but it was found, after repeated trials, that although the small engine could be got to work, yet the waste of power was so enormous, that the plan had to be abandoned. A high-pressure boiler has since been placed at the bottom of the upcast shaft; and this is connected with the engine, 600 yards distant, by the pipes used in the former experiment—these being wrapped with hay-bands, thinly coated with Roman cement; and the result is most satisfactory—the engine working freely, and quite up to the duty expected. The escape pipe at the engine is carried into the return air-course in the direction of the current; and the steam ejected materially assists the ventilation of the mine, which is here a good deal infested with inflammable gas—no doubt mainly owing to its propinquity to the faults before alluded to.

Kilburn, Oct. 9.

THE BLACK DIAMOND.

FOURDRINIER'S PATENT SAFETY APPARATUS.

SIR,—The owners of mines are truly indebted to the excellent apparatus of Mr. Fourdrinier in saving, not only the lives of the workmen, but the property of such owners as have adopted it. The case of Belmont will fully illustrate this position, wherein it is shown that even one-half of the apparatus was sufficient to hold the cage, and thus prevent the damage which must have ensued, had there been no such apparatus on the cage.

I am inclined to think that the owners do not rightly view the two-fold nature of the question—viz.: the certainty of saving life, and also the equal certainty of preventing extensive destruction of property when the ropes, or chains, do break.

A few months ago the rope at the Walker Colliery, near Newcastle, broke, and down went the cage, tubs, &c., carrying destruction with them, breaking the guides, tubs, and cage, which the master said it would take 50l. to repair. I was at that colliery again a short time ago, and I was surprised to see the ropes in a very unsafe state, being split nearly the whole length, and wrapped and re-sewed (they are wire-ropes); and still they were so unfit that the master, who is a very careful man, would not allow the pit to work any longer with them till they were repaired. Thus, independent of the damage, should they have broken, there was a cost, perhaps, nearly as heavy as the putting on the cages the apparatus alluded to, besides the loss of work necessitated by the delay in repairing the same.

At the Killingworth Colliery, a short time ago, the rope broke whilst drawing coals, and a vast deal of damage ensued; but, what may be considered very fortunate, a large number of workmen were standing ready to go down the pit on this same rope, had it come up unbroken that time. It makes the blood curdle to think of such things, and some of the men declared they became quite unnerved when they saw what a narrow escape they had had. I trust that the subject will be kept before public notice till such apparatuses are as general as the collieries.

P. R.

Newcastle-on-Tyne, Oct. 9.

PYROGEN.

SIR,—Will you allow me through the medium of your interesting Journal to ask Mr. Lake what is the difference between his theory of the solar system governed by pyrogen, and Mr. Hopkins's theory of the Universe, as described in his work on *Terrestrial Magnetism*. If I understand Mr. Lake's papers correctly, they appear identical; and, if so, what then is the difference between pyrogen and electro-magnetism?

London, Oct. 10.

ALBERT DUMARESQU.

NEW RAILWAY GUARD SIGNAL.

SIR,—The great desideratum in any signal, to enable guards to communicate with engines when a railway train is in motion, is that it should be free from wires, or cords, of any kind, and only brought into use when the actual necessity arises. This object I accomplish in the following manner:—I have a tube, with a trumpet-shaped or bell end; at the opposite end I place the metallic tone-pieces of an accordion, or Eolian, when the train is in motion, and the bell end of the tube is turned towards

the engine; the velocity of the current of air passing through the tube causes a succession of sounds, totally different from those of any steam-whistle. The only duty required of the guard is to turn its end towards the current of air when the signal is to be given. I have not time to send a sketch at present.—Z., Oct. 7.

SUBMARINE TELEGRAPH—ENGLAND AND FRANCE.

SIR.—In the account given in your Journal of the meeting of the shareholders of the Submarine Telegraph Company at Paris, your reporter states that the chair was taken by Sir James Carmichael. Allow me to correct this mistake, as, although warmly interested in the success of this important undertaking, I was unable to reach Paris in time for the said meeting, which was presided over by Mr. E. Aimé, a highly respectable and influential member of the French Stock Exchange. I should not notice this otherwise trivial error, were it not that I consider that every possible credit should be attached to Mr. Aimé's name, from his having been one of the earliest advocates and supporters in France of this great international telegraph, at a time when its success was not only a matter of conjecture, but was deemed by many scientific men to be an absolute impossibility. *Hôtel Meurice, Paris, Oct. 8.* J. R. CARMICHAEL.

ON THE CHANGE WHICH TAKES PLACE IN COPPER PYRITES, UNDER THE ACTION OF A GALVANIC CURRENT.—Mr. S. Pidwell read a paper, at the Royal Cornwall Geological Society, on this subject, in which he observed that a few years since some experiments were made by two members of the society on the yellow ferro-sulphuret of copper, by which a change was observed to take place on submitting it as a negative plate to the action of a galvanic current, and some statements were verbally made on the subject, but unfortunately the details of the facts form no part of the society's Transactions. He then adverted to Becquerel's experiments, and described the process followed and the results of the experiments of Mr. E. W. Fox. Mr. Fox says, "in a short time the yellow ore became beautifully iridescent, resembling peacock ore; it afterwards seemed to pass into purple, and ultimately into grey, not merely superficial, but penetrating to some depth, with a deposition of octohedral crystals of copper; the ore having considerably decreased in weight, as much he thought as 8 or 10 per cent." He noticed also the trials to decompose the pyrites made by Mr. Henwood. He then detailed experiments made by himself, first following Mr. Fox's plan, and afterwards a process which he thought might lead to more accurate results with regard to the decrease in the weight of the negative body. He then detailed the different processes he had used, the paper concluding as follows:—"In order still further to test the fact of the decrease, the process was adopted of using an indicator of the amount of copper precipitated, and Mr. Mason's arrangement of the decomposing trough, still keeping the deflection of the needle constant at 20°, by means of a regulating jar; this change of arrangement not making the slightest difference theoretically in the process of decomposition, the pyrites being subject to the same force and current, but produced in another manner, a copper positive pole taking the place of the zinc, action being induced by separate working elements. In this plan a working independent arrangement of two jars is used, in metallic connexion with the silver plate of which there is a piece of copper, taking the place of the positive zinc. In the same glass copper pyrites is suspended, the next glass holding the indicator, copper being positive and platinum negative; the third are the regulating troughs, positive copper in one, connexion of the fluids being made by sail-cloth, and in the other jar another piece of copper pyrites suspended. The working power was a Smee's battery of two pairs of elements, the remainder of the glasses charged with sulphate of copper; this was in action only 14 days, as no more time remained. Exactly the same effect took place as before on the pyrites, and as the same amount of force passed through each jar, theoretically the same amount of copper should be dissolved of the positive plate, and an equal amount precipitated on the other. On weighing the positive elements, the loss on each scarcely varied only three-tenths of a grain between the extremes. The platinum indicator had received its due amount to two-tenths of a grain, being nearly the mean of the three; both the pyrites, assuming that they had received the same amount of copper as the indicator, and by their own positive elements had lost, had scarcely decreased in weight, one being deficient six-tenths of a grain. The amount of copper precipitated and lost by the positive plates was 21 grains and a fraction. In making these experiments one curious fact came under my notice, which I think proves that the different colours induced on the pyrites is not the effect merely of metallic deposition. When the iridescent state is attained by changing the current, it is convertible nearly to the original colour of the pyrites, but not quite, having a shade of bright brown; in the second, a purple state, it is not to be reduced beyond the iridescent; in the grey state, not beyond the purple; at that point the deflection of the galvanometer goes down to the same point as it stands when the ore in its original state is made the positive element. Whether this is a mechanical or chemical change it is difficult to discover, as I have not found any decrease in the weight of the ore beyond the fraction of a grain, and as the weight of the pyrites amounted to 700 and 800 grains, it might arise simply from error in weighing."

NEW PROCESS OF TINNING.—Mr. A. G. Roseleur, chemist, of South-street, Finsbury, has just patented some improvements in coating or covering metals with tin, the first of which is applicable to tinning small articles, such as tacks, hooks-and-eyes, &c., on which a deposit of tin is precipitated by dipping them in a bath composed of water 22 lbs., ammoniacal alum 17½ ozs., and protochloride of tin, or other soluble salt of the same base, 1 oz., heated to about the boiling point. The alum employed will last for a considerable time, and when the bath is weakened by precipitation of the tin therein contained, the addition of a small quantity of the above salts, or other salts of tin, will restore its action. Cast-iron, and other metals in the rough, on immersion in this bath will be scoured and cleansed, and thereby prepared for either of the following processes:—The second improvement consists of a new mode of coating with tin the surfaces of cast-iron and other metals and alloys. The metals to be operated on are to be first cleaned or scoured with azotic, hydrochloric, or other suitable acid, to remove the oxide, and then immersed in a bath composed by digesting in 17½ pints of water, 10½ ozs. of bitartrate of potash or soda (tartaric acid, or acidulated tartaric of potash, or soda cream of tartar), and then adding an aqueous solution of three-quarters of an ounce of protochloride, or other soluble salt of tin. The metal to be coated is immersed in this solution, and the tin precipitated by the addition of zinc in small pieces. By this method a covering is formed of equal thickness in every part, so that, unlike the operation by immersion in molten tin, in this case the original roughness or inequalities of the metal operated on are not affected; and this circumstance is stated to give additional value to the process, and to render it applicable to a variety of purposes in the arts for which the old process is unsuited. The patentee describes, lastly, a process of electro-plating with tin; this process of electro-plating has hitherto been applied mainly to depositing the precious metals, and in cases where tin has been experimented on, the chemical substances used, such as cyanide of potassium, &c. &c., were so expensive as to render the process of but little commercial value. The bath in which the metal to be coated is immersed, consists of 17½ ounces of water, deprived of its alkaline salts, 11 lbs. of pyrophosphate of potash or soda, and 4 lbs. 7 ozs. protochloride of melted tin. The positive pole is a node of tin, not in contact with the metal to be coated. This process is applicable to iron or steel, copper, lead, &c. Claims: The coating of metals or alloys of metals by the direct superposition of tin in a suitable stannic solution, and the application of the said process to the scouring of metals, or alloys of metals, intended to receive a future coating.—2. The application of the process of double affinity for the purpose of tinning metals and alloys of metals, by means of the simultaneous presence of any metal and zinc, or any other metal analogous thereto, in a solution purposely prepared, as before described.—3. The applications of the voltaic current to the decomposition of a suitable solution of tin, for the purpose of coating metals and alloys of metal, as before described.

EXPERIMENT ON IRON SHIPS OF WAR.—On Tuesday last some practice took place from the *Excellent*, in Portsmouth Harbour, to test the effect of shot on iron steam-vessels of war. In this instance, the target, representing a section of the *Sinclair*, iron steam-frigate, was fired with kamptulicon, a composition about 1 ft. in thickness, of which prepared cork and India-rubber are the chief ingredients. It is the invention of Lieut. George Walter, R.M. The object of the experiment was to ascertain the effect of the composition in preventing iron splinters flying off when struck by shot, and the fracturing of the shot itself, in both which particulars iron vessels with linings of wood had, in previous experiments, been proved to be entirely unsuited for war; the splinters from the sides of the vessel, together with the fractured shot, it being seen, would be attended with most destructive effects on a crew. An experiment with kamptulicon had taken place about a fortnight since, but the small quantity of the preparation used on that occasion prevented any accurate idea being drawn. On Tuesday a larger surface was presented for the experiment, the butt being placed at a distance of 450 yards from the *Excellent*; 82-pounder guns were used, with a charge of 10 lbs.; and, out of eight shots, four took effect for the purposes of the experiment. The results were considered to be favourable, to a certain extent, as to a diminution in the quantity of splinters flying off, the adhesive and elastic composition retaining them, and preventing them being scattered about. The fracturing of the shot did not, however, appear to be much affected; and, although there could be no doubt that the ability of the shot to produce a shower of destructive splinters was considerably reduced, it was not thought that the composition had met all the necessities of the case. It has, however, many peculiar and very valuable properties, and must be considered superior to any other preventive of the consequences to which iron vessels are liable in actual warfare. It is decidedly superior to a lining of wood. It must also be said that the test was a very severe one; a target being securely fixed in the ground, offers a considerably greater resistance to shot than would be the case were it a floating body that was fired at, and thus the effects of shot are much more extreme in their character than would be the case in practice.

THE MINERALOGY OF GREAT BRITAIN—THE EXHIBITION OF 1851—PROFESSOR TENNANT'S LECTURES.

The Executive Committee of the Commissioners for the Great Exhibition in Hyde-park have just issued a circular, in which, considering it highly desirable that such a collection of British minerals should be exhibited as would give a just idea to the foreigners, who may be expected next year to visit the metropolis, of the mineral wealth of this country, they invite the proprietors of mines, quarries, &c., to assist in carrying out the views of the commissioners with reference to so important a part of the proposed Exhibition.

With respect to the best mode of preparing and exhibiting the specimens, the executive have made the following suggestions:—"It is desirable that the specimens forwarded should be generally of such a size as will best exhibit their usefulness for the purpose they are intended to subserve. In the case of building stones, marbles, alabaster, &c., cubes of six inches a side are, perhaps, most convenient; and in such case it would be desirable that one side should be left rough and one finished, the other exhibiting such processes as may be gone through in completing the material for use. Where slabs and large specimens are forwarded, they should also, as far as possible, exhibit more than one process, and always show one surface in an unpolished state. Gems should (as far as may be) appear in duplicate, one showing the rough stone, and the other the polished and finished ornament. It should be borne in mind by exhibitors that objects of utility rather than curiosity should be selected. In the case of ores and minerals, of which large quantities exist, the ordinary appearance of the mineral is that of chief interest and value. It is highly desirable also that some statistical information respecting the subject exhibited should in all cases be forwarded. Each specimen should be marked in such a manner that it can readily be identified. The name of the locality, parish, township, and county, should be given, and the extent of the work stated, while some account of the quantity of such substance that has been supplied within a given time would be of great value, and would serve as a permanent record of the state of the works at the period of the Exhibition."

The following is a classified list of the articles more particularly required:—

EARTHY MINERALS.

Rock crystal, clear, and as required for optical purposes.
Flints, as used in the manufacture of glass, gun-flints, used in building (squared or dressed), used in roads.
Sands—Sand for glass, foundry sands.
Grindstones of various kinds; whetstones and hones; touchstone (as used by jewellers); millstones; filter stones.
Tripoli (polishing metals, &c.)
Tourmaline (used for optical purposes).
Zircon and other jewels used by watchmakers, &c.
Sulphur.
Amber.
Asbestos, raw and manufactured into dress.
Steatite (French chalk).
Talc and mica.
Meerschaum (magnesian).
Nitre.
Rock salt.
Alum.
Borax.
Carbonate of barytes; sulphate of barytes.
Strontianite.
Felspar, in all states of decomposition.
China clay (Kaolin), pottery clay, brick clay, Stourbridge and other fire clays, pipe clay.
Fullers' earth.
Slates of all kinds.
Corundum emery.
Limestones, Iceland spar used for optical purposes.
Marbles of various kinds.
Fluor-spar.
Alabaster.
Lithographic stone; cement stones.
Calcareous, and used as manure.
Phosphates of lime, nodules, and lumps used as manure.
Granites, porphyries, and other hard porphyritic rock, used chiefly in a polished state, and for purposes more or less ornamental.
Sandstones, used for purposes of construction.
Conglomerates of flints and other siliceous rocks.
Breccias of limestones.
Limestones used for construction.
Basalts, used chiefly for road stuff and paving.
Flags of various kinds.
Mineral Carbon—anthracite, Cannel coal, jet, caking coal (chief varieties), steam coal, Bovey coal, lignites, bituminous, naphtha, asphalt, petroleum.
Ores and Metalliferous Minerals.—It is desirable one specimen at least of each metal in its purest state should be forwarded for exhibition.
Ores of iron.
Iron pyrites used for sulphur, &c.
Magnetic ores of various kinds.
Iron sands, Hastings, &c., formerly used in weald.
Red hematites; brown hematites.
Spathic iron.
Clay ironstones, various kinds.
Chromate of iron.
Ores of cobalt found in England.
Copper nickel.
Ores of zinc—blende, calamine, electro-calamine.
Ores of cadmium—Gruauwackite.
Ores of antimony—sulphurets.
Ores of arsenic—realgar, orpiment.
Ores of mercury.
Ores of lead—galena, white lead ore.
Ores of tin.
Bismuth.
Ore of Uranium—pitch blende.
Tungsten.
Molybdenum.
Copper—native, sulphurets, oxides, carbonates.
Silver—Native, sulphurets, oxides.
Gold, Gems, and Ornamental Stones.—N.B. Useful varieties of form should, if possible, accompany each specimen of polished gems. It will be observed that foreign gems are not included in this list:—Cairo gorn, cat's eye, agates, onyx, mocha stones, chalcedony, cornelian, bloodstones, Jasper, opals, garnets, topaz, olivine, spinelle, &c.

It may not unreasonably be expected that the requirements of the commissioners, in reference to British minerals, will give additional interest to the lectures of Prof. Tennant on mineralogy, this session, at King's College. The learned professor commenced his course on Wednesday, when there was more than an average attendance of students. The following is a sketch of his introductory lecture:—

Prof. Tennant said that the productions of our globe naturally distributed themselves into three grand kingdoms—animal, vegetable, and mineral. The two first included all beings possessed of vitality—beings which increased by nutritive substances, taken internally, which arrived at maturity by a series of successive developments, whose parts were mutually dependent, and could not be separated without destroying the perfection of the individual, and which, after a certain period, lost the capability of continuing the usual functions of life, and, consequently, died. The mineral kingdom, on the other hand, contained those natural objects that were not possessed of life—objects which increased by accretion merely of an external addition of particles, unaltered by any powers of assimilation in the object, which were equally perfect at the earliest commencement of their formation, and in the enlarged individual—whose individuality was not destroyed by a separation of parts—whose formation was the result of chemical attraction, and, consequently, not necessarily, from their nature, liable to death.

The learned lecturer exemplified this description of the formation of minerals, by exhibiting certain substances exposed to the action of different chemical solutions; as the watery portion of the structure evaporated, the particles suspended in it were deposited, and the aggregation formed an apparently new substance, and these substances assumed different forms, according to their nature. For instance, the crystals of alum were an octahedron, and of nitre a prism. If, for instance, the sulphates of copper and of iron were boiled in the same solution, both would produce crystals dissimilar to the results of the alum and nitre. These very operations, with all their differences and dissimilarities, might be observed going on incessantly in Nature. If they went to Palermo, they would find there a deposition of sulphur in minute particles, or crystals of a peculiar shape, associated with sulphate of strontia, upon the surface of the rocks. If they went into Cornwall, they would find there, in the vast fissures which had been rent asunder ages ago by volcanic action, a deposition of fluor-spar, on that quartz, and on that copper barytes, each taking its own definite form, and whether tested by analysis, by cleavage, or by hardness, the same result would be found throughout the whole mass.

It was a peculiarity of minerals, that when broken into the smallest fragments each would take the same character. It was not so in the vegetable and animal kingdom, and this was, therefore, one of the great distinctions which marked out the general division to which the productions of the globe were subject. Comparative anatomists were, however, often disposed to ask, when examining microscopic objects—"What is an animal? How must it be distinguished, as contrasted with a mineral or a vegetable?" He answered in the well-known axiom of Linnæus—"Stones grow—vegetables grow and live—animals grow, live, and feel." Minerals, however, only grew so long as there was in the solution in which they were placed an additional quantity of the matter requisite to enable them to do so. Nature lost nothing, neither did she gain anything. Pursuing this subject for some time, the lecturer incidentally mentioned the deposits of gold in California, and alluded to the mistakes that persons ignorant of mineralogy often made in fancying a shining, micaceous schist was the precious metal. He exhibited, by the kindness of Mr. Limbird,

143, Strand, the largest lump of Californian gold ever yet brought to England. It was a rolled pebble of quartz rock, through which the gold had been disseminated. The following was the description of this magnificent specimen, given by Mr. Limbird:—"This 'big lump' of gold, the product of the Californian Dorado, is not only the largest, but the finest, specimen yet brought to England. It was purchased from the finders for 1000*l.*, and exhibited in San Francisco as the largest piece then discovered. Its weight, with quartz, is 14½ lbs. troy; specific gravity of the mass, 5.052, quartz being 2.3. The average specific gravity of gold from California is 19; this will show the specimen to contain about 9 lbs. weight of 24 carat gold. Its intrinsic value is between 400*l.* and 500*l.* There was no reason, geological or mineralogical, why masses of a similar character might not be found yards thick and wide, and, of course, of enormous value." The lecturer also exhibited several other specimens from the "diggins"; one was a piece found in the Yuba river, from which the finders had picked out all the rock, leaving nothing but an irregular piece of gold, weighing 11 ozs.

He perfectly agreed with Dr. Thompson, that mineralogy might be considered a modern science, as it had made no satisfactory progress amongst the ancients. Theophrastus, indeed, had left a treatise on stones; but his descriptions were so vague, that we were often left to conjecture the minerals to which he referred; and even if all the minerals he described were accurately known, they would constitute but a very small portion of the mineral kingdom. Pliny had drawn up a catalogue containing a considerable number of minerals; but it consisted merely of the names of the species, with a few observations on the uses to which they were put. Of this catalogue only a small number had been made out by modern mineralogists. We could scarcely be said to have possessed any mineral system at all till Cronstedt published his *System of Mineralogy*, in 1758. His descriptions were indeed very imperfect; but there was an attempt at a systematic arrangement. Werner, in 1778, first contrived a mineralogical nomenclature, and showed how minerals might be described in an intelligible manner to others. It was after the publication of this nomenclature that the science began to improve with rapidity. Werner himself, who had been appointed Professor of Mineralogy in the Mining Academy of Freiberg, contributed not a little to its rapid extension by his lectures and researches. He (the lecturer) in Sept., 1842, had been allowed to look over the collection of Werner at Freiberg; and those who had charge of it made a great point of stating that Werner could put his hand into a bagful of specimens, and say, without seeing them, what they were. A moment's reflection would show that there was no great difficulty in distinguishing materials of such varied qualities by the touch. Numerous systems of mineralogy were published after Werner's nomenclature was known. One of the earliest of these was Eimerling's; and one of the latest and most complete was Hoffman's *Handbuch der Mineralogie*, in 4 vols., 8 vo. Werner added greatly to the number of mineral species; but as in forming them he was merely regulated by his own notions, and had never laid down any specific rules, none of his pupils were capable of forming new species. Hence his system was not susceptible of modification, or correction, and could, therefore, only last during the lifetime of the original contriver. His collection, however, was a most magnificent one, particularly rich in foreign specimens, contributed by some of his pupils who travelled. His collection of gems presented a rare exhibition of beautiful tints. After Werner, must be reckoned the great French teacher, Haüy, who determined the primary form of every mineral, and showed how all the secondary forms were derived. The knowledge of these primary forms enabled him to arrange the mineral species with more precision than had been done before him. He defined a mineral species to be a substance composed of the same constituents, united in the same proportions, and possessed of the same crystalline form—in fact, he almost entirely regulated his formation of species by the form of the crystal. The chemical composition was taken into consideration only when two minerals, having the same crystalline shape, differed in their composition. For example, the primary form of galena and of common salt were the same—both being cubes; but galena was a compound of sulphur and lead; while common salt was a compound of chlorine and sodium. They must, therefore, constitute two distinct species.

The individuals to whom we lay under the greatest obligations for the measurement of crystals in Great Britain, were Mr. Brook, Prof. Miller, and the late Mr. W. Phillips. The former in his introduction to crystallography had given an alphabetical catalogue of minerals—to a great number of which he had affixed his own determination of the primary form. Mr. Phillips had not only given the primary form, but likewise figures of the most important of the secondary faces, together with tables of the angles which they formed with each other, and with the primary faces. This stamped a value upon the work of no ordinary kind. He regretted that this work had been long ago out of print, although two eminent scientific men had undertaken its revision, with a view to its being reprinted. The talented lecturer then referred to several other books on mineralogy which were accessible, and which he recommended—some of these authors were Nicol, Dana, and Ansted.

He could not, however, pass without a few words of high commendation, the *Introduction to Mineralogy*, published in 1819, by the late Robert Bakewell. In it was said that, "he who would obtain a just and comprehensive view of mineralogy, must not confine his attention to minerals as they are arranged in cabinets, but contemplate them as they occur in their native repositories; he should endeavour to trace the connection between different species of minerals, and the changes which they undergo by processes of natural chemistry—changes which cannot be imitated in our laboratories. Persons who live principally in large cities, and only view minerals in cabinets, are led to entertain the idea that in the mineral kingdom nature is in a state of profound repose, and that all the different minerals at present existing are coeval with the globe itself." People thought a stone was a stone, and always had been a stone; it certainly was so hard as to make the idea of its fluidity somewhat difficult to an unthoughtful observer. Iron, however, was equally hard; but he (the professor) had seen it at Merthyr Tydvil run from the furnace in a stream as limpid as oil, but in colour like blood, from the action of the atmosphere upon the mass. It was true, however, that when minerals were taken from the mine and placed in cabinets, they appeared to undergo no further change, and to be imperishable; but, in their native repositories, changes were continually, though slowly, taking place. Examination of nature was indispensable, but that examination was rendered more profitable by previous instruction in the class-room.

The professor then showed that, from the nature of things, our knowledge of the earth's structure could be but superficial. In proportion to the bulk of the earth, its highest mountains were merely unimportant inequalities of its surface, and our acquaintance did not extend in depth more than one-fourth of the elevation of those mountains above its general level. The nature of the crust of the earth was most readily studied in mountains, because masses were obvious there, and also because they were the chief depositories of metalliferous ores, the operations of the miner tending greatly to facilitate their study. The learned lecturer recommended his youthful hearers to a tour through the mining districts; and though he cautioned them against receiving implicitly every statement made by the miners, who were very superstitious, they would not wisely reject them without consideration. One of the richest mines of Cornwall was said to have been discovered in consequence of it being observed that the snow always melted sooner at a particular spot than elsewhere. This was not improbable, because they all knew that metallic substances were good conductors of heat, and thus the lode might, without any supernatural means, be revealed. The lecturer dwelt at some length upon the advantages of mineralogy, inasmuch as it enabled its devotees to understand the true nature and value of substances often erroneously supposed to be precious metals. He had already alluded to the mica schist, taken by some Californian diggers to be gold. California and its gold had been discovered and described years ago; but the first adventurers, bringing home shiploads of a shining substance, which proved worthless enterprise in that direction, was discarded, and the acquisition of the treasure fell into the hands of later and better informed travellers. In the Brazils, diamonds were for years used only as pretty playthings, until a Spaniard discovered they were diamonds equal to those of India; and diamonds, he had no doubt, might be found in some of our colonies, if they were looked for by intelligent and instructed persons. Few jewellers, he regretted to say, had any scientific knowledge of the articles in which they dealt. He mentioned a case in which a soldier had sent home from India, at a great expense, what he thought was a diamond, whereas it turned out to be not worth twopence; and a case of minerals, at a house in the city, which, instead of being as its consigners expected of an inestimable value, was not worth the carriage.

He next touched on the mineral treasures of Great Britain. Fifteen years ago he estimated them at 21,000,000*l.* per annum, including only coal (at the pit prices), iron, copper, lead, salt, tin, manganese, sulphur, alum, zinc, antimony, cobalt, bismuth, &c. At the present moment, he believed if he were to estimate their annual value at 30,000,000*l.* he would be under the mark; and, including granite, slate, clay, and other building materials, 50,000,000*l.* would be a low estimate.

The lecturer concluded by giving a description of the physical character of minerals, which included their external form, their structure, hardness, or fragility, their specific gravity, and the nature and shape of their fragments. The builders of old seemed far better acquainted with the physical character and durability of building stones than those of our day. He went the other day to Stonehenge. The outward range of those most extraordinary stones were large masses of quartz, and the internal range of hornblende. Stonehenge, Kit's Castle, in Kent, and other Druidical temples now in existence, which had already probably stood 2000 years, would be standing when Westminster Abbey, King's College, and other modern structures would be in ruins, or replaced, stone by stone, and year by year, as they failed. In referring to hardness, he mentioned that Cronstedt had constructed a table consisting of 20 numbers, by which the relative hardness of minerals could be determined. Modern mineralogists had reduced it to 10 numbers, which were as follows:—1, talc; 2, gypsum; 3, calcareous spar; 4, fluor; 5, apatite; 6, felspar; 7, quartz; 8, topaz; 9, sapphire; 10, diamond.

The next lecture will be upon crystallography.

* Another lump of Californian gold has just arrived, weighing 26 lbs. 9 ozs.

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These extensive Lead Mines are situated about two miles from Newton Stewart, near the head of Wigtown Bay, in the county of Kirkcubright, and lie at the foot of a range of mountains nearly at the junction of the clay slates and granite rocks.

Black Craig and Craigton Mines are held under lease for 31 years, from the respective proprietors, and at one-fourteenth dues. These extend about three miles on the course of the lodes, and two miles from north to south. The principal lode crosses a large hill, and runs in the direction of south of east; it underlies to the south, and is from 15 to 35 feet wide.

This extraordinary lode was discovered about a century ago, while forming the present military road over the hill referred to, where the ore was found in a solid bunch of considerable thickness. Several other courses of ore afterwards proved on the course of the lode, some of them extending to nearly 100 fms. in length, and varying from 3 to 9 feet in thickness. In prosecuting these discoveries, immense quantities of ore were raised, and at a very small cost. The poorer portions of the lode were then left as valueless, but which can now be worked at a considerable profit by means of the present powerful machinery for crushing and dressing the ore, and other appliances which were unknown at the time referred to.

Very large profits have then resulted from these mines, for many years amounting to above £25,000 per annum, and it is fair to presume, that when the complete and powerful machinery recently erected is in full operation, and the workings extended on the courses of ore now standing between the deep adit and the 25 fm. level, that similar large profits will be realised.

There has been recently discovered in the sets, extending considerably east and west of that portion of the lode already developed, and there can be little doubt will prove equally productive. Several applications have been made by miners to take bargains on the whole ground referred to, and to work on tribute from the surface.

The present available plant consists of about 600 fathoms of adit levels, through which a horse on railway of at least 500 fathoms has been laid, and extending to the dressing floors. There is also about 200 fathoms of engine and other shafts; several large reservoirs, houses, office, smiths' and joiners' shops, powder and ore house, dressing floors, stock of mining materials, railway waggons, tools, implements, &c. The machinery consists of a water-wheel, 30 feet diameter, and 2 feet 9 inches breast, used for driving the crushing mill and dressing machinery. There is also a 40 horse steam-engine, with pumping and winding gear; the whole of which has been recently estimated at the value of £16,000.

During the twelve months ending May 1st, 1850, 396 tons of lead ore were raised and sold at the net proceeds of £3762. The cost of raising the same, including dressing, dues, timber, &c., was £2496—leaving a profit of £1266 upon the twelve months' workings. Since the month of May, chief attention has been devoted to the clearing of the engine-shaft in the western ground, and it is expected the water will be drained from the bottom level in a few days, from which it is calculated that considerable quantities of ore will be speedily raised.

These mines were the property of gentlemen who sold a portion of their interest at £5 per share, having, previous to so doing, undertaken to pay all the cost of working the mines up to the 30th of June last, together with all expenses connected with the completion of the steam-engine, and the pumping and winding apparatus, being entitled to all ores raised up to that time, and at the expiration of the term specified they delivered up the mines to the shareholders, generally free of all debts and liabilities whatsoever, the shareholders becoming from that date entitled to all benefits and profits. The original proprietors are disposed to part with a further small portion of their remaining interest to the public, at the rate of 5s. per share; and as beyond all doubt the company will shortly be in receipt of rapidly increasing funds from the sales of the ore, and as at the present moment there is a considerable balance in the hands of the company, the adventure is confidently offered to the public as one of great promise and advantage. All parties desiring an interest in this undertaking are at liberty to send their own agents to inspect the mines. The cost-book, with the rules of the mines, can at any time be inspected, and every information obtained, and a plan of the mines, with specimens of the ore, can be seen on application to the secretary, 13, George-yard, Lombard-street.

WEST PHENIX MINE, in the parishes of LINKING- HORNE AND ST. CLEER, NEAR LISKEARD, CORNWALL.

Divided into 1024 shares.—Deposit £2 per share.

This invaluable mine adjoins the Phenix, whose riches as a copper and tin mine have lately proved enormous. The lodes in the West Phenix set are parallel, and not far from the south and West Caradon Mines—the shares of the former originally cost £3, and now selling at £20; and the latter, £20, and now selling at £205. The two courses of South and West Caradon pass through this set. The lode in West Phenix set is large, varies from 10 to 20 feet wide, strong and well defined, is the same lode as the Phenix, and carries precisely the same indications. It is also ascertained that a rich course of ore now exists in the 13 fathom level, 14 inches wide, and worth from £90 to £100 per fathom. The small sum of £1150 has been paid for the set, which will be reimbursed.

The accompanying reports, from Evan Hopkins, Esq., 13, Austinfrars, London, and Capt. Samuel Secombe, of the Phenix Mine, demonstrate satisfactorily that the West Phenix Mine is no speculation, but only requires capital to develop the riches which are positively known to be in this set. The ground being easy, the work will be rapidly accomplished. Five hundred and fifty shares are only now issued to the public—the remainder of the 1024 are reserved to the owners of the mine, agreeably to the conditions of the Cost-book. The calls will not exceed £1 per share every two months, and it is estimated that long before £7 or £8 per share is expended the mine will be in rich and profitable working. A rich and extensive vein of tin has also been purchased, and the mine will be worked with the strictest economy, under the superintendence of the best practical agents. A large number of the shares are already taken up.

Application for the remaining shares may be made to James Lane, Esq., 90, Old Broad-street, London; or to John Symon Higgs, Esq., 2, Chichester-place, Exeter.

OFFICES—14, HIGH-STREET, EXETER.

BANKERS—Messrs. Sanders and Co., Exeter; the Devon and Cornwall Banking Co., Exeter and Liskeard.

Report of Evan Hopkins, Esq.

This set is situated at the south-west foot of the Cheesewring, in the Caradon mining district. The lodes passing through this property are the continuation of the Phenix lodes westward; but as they leave the pale brown granitic rock of the east flank, and enter into the schistose granite of the West Phenix, they become more productive of tin than copper. The granite here traverses by many soft channels of ground, and also by large veins of schist rock, which are more or less impregnated with tin. The lodes in this set are intersected by the West Caradon cross-courses, and are of considerable magnitude, judging from the ancient superficial workings. Large quantities of rock, containing tin, may be extracted from this set at a moderate depth, and probably a large amount of the black and grey copper ore, also, probably to a considerable depth on the east side of the main cross-course. This mine should be worked in a very wide extension, as I think the lode will be found in numerous branches; and a most economical mode of the dressing should be introduced, than the ordinary method employed in the county of Cornwall—by these means it may be rendered a very valuable property.

13, Austinfrars, London, June 28, 1850. EVAN HOPKINS.

Report of Capt. Samuel Secombe, of the Phenix Mine.

In compliance with your request, I beg to furnish you with the following report of the West Phenix, or Withybrook, Mine, which is situated to the west of, and adjoins the Phenix Mine—the strata of both mines is granite. The West Phenix, or Withybrook, Mine set, contains several known lodes; the greater part of them has been worked on, more or less, for tin, by the ancients; one in particular has been more extensively worked on than the others, and which is a continuation of the principal lode in the Phenix set, and is precisely the same lode as the one proving so rich and productive for copper ore in that mine. It is a large strong lode, varying in size from 10 to upwards of 20 feet wide, and very regular in its dip or underlay, which is south. This lode has been laid open, and very extensively worked near your eastern boundary, to the depth of 40 fathoms, and in these workings yielded large returns of tin, which was found chiefly in the capels of the lode. The gossan part of the lode in these workings is large, and contains small portions of copper ore, and presenting good indications that the lode will, when laid open to a reasonable depth, be found to contain large deposits of copper ores of rich quality. I have been informed that the deeper levels of this lode in your set are only 14 fms. below the surface, and at that shallow depth the lode was found to contain large quantities of rich tin, but could not be followed, having no machinery to keep the workings drained. These old workings are now full of water and stuff, and cannot be examined until cleared up; but, judging from what can be seen of this lode in the Phenix set, and their continuity to each other, I am fully persuaded that if the West Phenix, or Withybrook, Mine be effectually laid open, it will prove to be a lasting and profitable mine, and one that will not require a very large amount of capital, if judiciously laid out.

Liskeard, August 31, 1850. SAMUEL SECOMBE.

Report of John Chapman, Working Miner.

I am a miner, and have been so all my days. I am now 80 years of age, and have always lived near the West Phenix Mine. When I was young there was no steam-engine; and what is more, there is no water to drive a wheel near the West Phenix Mine. The old men worked the mine down to the 13 fathom level by a horse engine, changing the horses every half-hour, by day and by night. At last the water came too strong for them, and they were obliged to abandon the mine. It was often tried after this, but they never could fork the water. All the miners in the parish are aware that there is a solid course of tin in the bottom of the mine, 14 inches wide, each side of the great cross-course, and I should say, according to the price of tin in these days, is worth from £90 to £100 per fathom. You have also large deposits of copper ore, and very rich in your set, but in olden times copper was not looked after. It is the Phenix lode you have in your set, and my opinion, you will have as good a mine for rich copper as Phenix. There is no difference in the lodes, they are the same. The Phenix lode carries tin on the backs of the copper.

Liskeard, Sept. 10, 1850. JOHN CHAPMAN.

PEDNANDREA TIN AND COPPER MINE, REDRUTH.

Estimated capital, £15,360, in 312 shares of £50 each.

Upon the Cost-book Principle, and under the management of Capt. William Richards, of Redruth.

The first call to be £10, in two instalments, at one and four months respectively.

It is enough to state that this highly promising and extensive SETT is situated in and around the town of Redruth, close to the following prosperous and dividend-paying mines—viz.: Carr Bros. South Basset, North Basset, and Wheal Buller, and in the immediate vicinity of others of known value and productiveness. The whole of the sets have been secured for twenty-one years, unexpired, from the respective lords and tin bounders, at a reduced scale of dues, and a large majority of the shares have been already appropriated.

The following report (annexed) is from the only surveying agent at the last working:—

PEDNANDREA MINE.

Levant Mine, St. Just, March 8, 1850.

DEAR SIR,—In answer to your letter to me requesting a Report upon the above mine, I beg to inform you, that I am the only surviving captain who managed this mine at its last working, and that I consider the speculation a fair one, if worked according to my views—viz., that an 80-inch cylinder engine, should be at once placed in the present engine-house, and fork the water to the 80 fm. level, under the adit (the entire depth of the mine being 90 fms. under the adit, and the adit being about 20 fms. from the surface), the levels should be then driven east. There is now in the 39 fm. level, which is about 80 fms. east of the engine-shaft, a tin lode, about 2 feet wide, worth from £10 to £12 per fm., and was so left when the mine ceased to work. About the 60 fm. level there is a splendid lode of tin, which was let at half tribute, whilst the materials on the mine were drawing, and from which four men, who went down and never returned during three days, realised a profit on their proportion of the tin they brought to the surface, of £18 per man; and if this lode continues, there can be no doubt that this alone will give a handsome profit to the adventurers. This is my report, and I shall be at all times ready to furnish you with any information you may require. I am, &c.,

To R. HEARLE, Esq.

The remaining shares will be at once appropriated to the earliest respectable applicants, and as the first general meeting of shareholders is advertised for Thursday, the 31st inst., at Andrew's Hotel, Redruth, at six p.m., immediately after the ticketing for copper ore, an early application is necessary to be made to the Provisional committee, at Bank-house, Redruth, or to R. HEARLE, Esq., purser of the mine, Green-lane, Redruth. Applications for particulars can be made in London to Mr. Evan Hopkins, C.E., 13, Austinfrars. Dated Oct. 9, 1850.

WHEAL OAK TIN AND COPPER MINE, WENDRON, CORNWALL.

Held under leases for 21 years, nearly 20 of which are unexpired, at 1-18th dues. Divided in 1080 shares, conducted on the Cost-book System, under the superintendence of a Finance Committee.

COMMITTEE.
MR. S. BROUGHAM, Falmouth, Chairman.
MR. PARRY, Hayle. MR. B. C. ROWE, Falmouth.
MR. JOHN JENKIN, Wendron. MR. H. SHEPHERD, Mullion.
MR. JOHN TRETHOWAN, Little Falmouth, Purser.
Messrs. TWEEDY & Co., Bankers, Falmouth.

In offering shares in this mine to the public, the proprietors beg it may be distinctly understood it is not for the purpose of jobbing, but in order to work the mine effectually, which has hitherto been impracticable, on the fact of several of the old adventurers being unable to pay their proportion of dues; it has consequently fallen heavily on those who can do so, and who are fully prepared to continue their present interest. From these circumstances, very little has been done for the last 12 months, and several persons in the neighbourhood have been anxiously expecting the set would be abandoned, when they had prepared to secure it for themselves. In this, however, they will find themselves disappointed—an arrangement having been made with the defaulters; and the purser is now in a position to offer to the mining world ONE-HALF of the MINE, at 25s. per 1080 shares—ALL CALLS and LIABILITIES PAID. In fact, to form a new Company, in which 500 shares are held by the present proprietors.

The engine-shaft is sunk on the lode 42 fathoms from surface, and from the different levels at this point more than £800 worth of tin have been returned. The bottom, or 34 fathom level, has been driven 40 fathoms east, from whence about £30 worth of copper ore have been sold; the lode in this end is now from 2 to 3 feet wide, with most favourable indications, being composed of mundle, spar, and yellow ore; in short, on approaching the granite (which cannot be more than 10 fathoms), the lode is regularly improving, and it cannot be considered too sanguine to expect, from present appearances, a good and lasting lode at the junction of mundle and granite. This lode underlies north about 2 feet in a fathom; and in a cross-cut, driven about 6 fathoms north, at this level, a branch of rich copper has been intersected, with a small dip towards the great lode, from which, when united, a great improvement may be expected.

About 70 fathoms south of the engine-shaft is a caunter lode, called Wheal Jane, on which have been driven a great many fathoms; this level will shortly intersect five other lodes in the granite, at which point good results may be confidently anticipated, and this has invariably proved the mine adjoining. There is a cross-course a few fathoms before us, which, when cut, will enable us to communicate with the engine-shaft, at about 22 fathoms from surface.

In the north part of the mine a deep adit, immediately opposite Wheal Trannack, has been driven south about 150 fathoms (present depth 45 fathoms from surface), and the agents are in hourly expectation of intersecting the engine and other lodes. When the first shaft have been accomplished, it will be very easy, and probably profitable, to drive on its course, to communicate with the engine-shaft, and thus under the mine under the present workings.

Between the north and south boundaries eight lodes are known to exist, some of which have been highly productive, particularly those of Wheal Trumpet, Wheal Ann, Wheal Whidden, Trevenen, and Trenethick Wood Mines. The whole of the lodes in the two latter mines run through Wheal Oak, and were worked with immense profits to our extreme eastern boundaries, leaving a rich lode of copper in the end, which the adventurers could not follow, in consequence of the proprietors of Trenethick Wood Mines and Estant (the whole of which is now granted to Wheal Oak) refusing to grant under any circumstances.

There are other points to which attention will be directed at the first meeting of the new company, too numerous for the limits of the present prospectus, either of which will be found worthy of notice.

Wheal Oak has been opened to the present depth and levels by aid of a water-wheel, 18 feet in diameter, and 3 feet 6 inches in breast, which power is deemed sufficient to sink at least 100 fathoms.

The set, as it stands, is valued at £4500; still, in order that the mine may be fully, effectually, and properly worked, it has been determined to offer the interest already named at a merely nominal value. Immediately the allotment of shares shall have been made, a General Meeting of the adventurers will be convened, of which due notice will be given.

Early applications for shares may be addressed to the purser, Mr. Trethowan, Little Falmouth, Falmouth, near Falmouth, Cornwall; Mr. Williams, accountant, mine mine broker, Green Bank-terrace, Falmouth; or to Mr. W. Fenton, 5, White Hart-court, Lombard-street, London.

IMPORTANT DISCOVERY OF SILVER LEAD MINES, NEAR BRISTOL.

The attention of persons interested in MINING PROPERTY is particularly directed to the discovery of the SILVER-LEAD MINES, recently discovered, and proved at considerable expense. It is proposed to FORM A COMPANY TO WORK these MINES, to be called the ITCHINGTON HILL SILVER-LEAD MINING COMPANY, to be conducted on the Cost-book Principle, which, by Act of Parliament, exempts shareholders from any liability beyond the amount subscribed on their shares.

The set, or grant, comprises about 80 acres, and is held direct from the Lord of the Manor, at 1-20th dues, or 5 per cent. on the produce, for a period of 21 years, from June, 1830. The situation is highly advantageous, being only 10 miles from Bristol, and 10 miles from the Bristol and Gloucester Railway, and within 6 of the River Severn. Several valuable lodes have been discovered, three of which have been explored to some extent, showing throughout indications of a highly metalliferous quality, which the reports will fully explain, and samples seen at the Company's offices.

From the peculiar situation of the lodes, and the natural character of the district, it is considered that expensive machinery will be unnecessary.

A considerable sum of money has been expended on the only required speculative outlay, the lead being actually discovered. Gossan, fluor-spar, and other indications there being a largely productive mine, have been found, fully justifying the shareholders in anticipating a return on the capital invested, equal to the most valuable mine now working.

The mine is to be divided into 3072 shares; 2272 of these will be issued to the public, on which £3 per share is to be paid on signing the Cost-book; this sum the proprietors are fully assured will carry on the works effectually.

Various assays have been made, and the ore is found to be exceedingly rich in silver: one by Mr. Clements, of the Panther Lead-Works, Bristol, produced 554 per cent. of lead, and 1 oz. 1 dwt. of silver to the ton of ore, and valued by him at £19 10s. per ton, as produced at the mouth of the mine; another by Mr. Johnson, of 79, Hatton-garden, London, produced 12 cwt. of lead and 68 oz. of silver to the ton. The price of lead or usually averages about £11 per ton.

Applications for shares to be made to Mr. S. J. Green, at the offices of the Company, No. 9, Hart-street, Bloomsbury-square, London, where specimens of the ore may be seen; and to Mr. Wray, Alveston, near Bristol, with whom the cost-book will lie for signature, or the convenience of country shareholders.

MINING ALMANAC for 1850.—THE SECOND VOLUME

of this publication is now ready, with Original Articles and Statistical Matter up to the latest period.—Price 6s.

London: Published at the Office of the Mining Journal, 26, Fleet street.

SEWERAGE OF LONDON.—THE ATTENTION OF THE COMMISSIONERS appointed to determine upon the MOST EFFICIENT MATERIAL for the CONSTRUCTION OF THE SEWERS OF LONDON, is particularly directed to the ASPHALT OF SEYSEL, which more than any other material is applicable to the CONSTRUCTING AND INTERNAL COATING OF BRICK CULVERTS and OTHER CHANNELS for DRAINAGE.

The experiments made by the Royal Artillery on the embankment of Plymouth Citadel, constructed of Seyssel Asphalt Brickwork, under the orders of the Hon. Board of Ordnance, have fully proved the superiority, adhesiveness, and strength of Seyssel Asphalt over all other cementitious compositions. A printed account of these experiments can be had on application to

F. ARELLI, Secretary, Seyssel Asphalt Company—"Claridge's Patent"—Established 1838.

Note.—The application of the Asphalts of Seyssel is specially recommended by the Commissioners on the Fine Arts for covering the ground line of brickwork in marshy situations, and it has been suggested that it would be peculiarly applicable for covering the areas of closed grass yards, and for the construction of catacombs.

THE PATENT OFFICE AND DESIGNS REGISTRY, No. 210, STRAND, LONDON.

INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION OF INVENTIONS and DESIGNS, with Reduced Scale of Fees.

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is respectfully requested to the superiority of those annexed, over those hitherto in use.

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Every branch of a polite and useful education is embraced—the Mathematics are thoroughly taught, and FRENCH is constantly spoken by the pupils, under the direction of an efficient native—GERMAN is also spoken, and Singing taught in classes.—Every attention is paid to moral and religious culture, and the situation and arrangements of the establishment are such, that during four years it has been completely exempted from illness.—Prospectuses and references will be forwarded on application.

Chemical Referee—H. D. Pepper, Esq., Consulting Chemist to the Royal Polytechnic Institution, London.

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Pursuing, &c., may be had of all booksellers.
References.—Dr. D. B. Reid, F.R.S.E., &c., House of Commons, Westminster; R. Prosser, Esq., C.E., Birmingham; J. L. Bullock, Esq., Editor of *Fraser's Chemical Analysis*, Conduit-street, Regent-street; J. Gardner, Esq., M.D., Editor of *Liebig's Letters*, &c., Mortimer-street, Portland-place; and W. Shaw, Esq., Strand, London.

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Communications to be addressed to Mr. Mitchell, 23, Hawley-road, Kentish Town.

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